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THE GARDEN MAGAZINE

*Devoted to Planting and Managing the Grounds About the Home
and to the Cultivation of Fruits, Vegetables and Flowers*

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INDEX TO THE GARDEN MAGAZINE

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An asterisk (*) indicates that the article is illustrated

- Abelia grandiflora, 86*
- Adaptable Amaryllis, 302*
- Ajuga reptans, 58*
- Alexander, John, article by, 221
- All Parties Are Fed, 13
- Allen, R. E., article by, 298
- Alpine Primrose, 13
- Alpines for Early Bloom, 84
- Alsop, G. F., article by, 159
- Alum-root, A New White, 15
- Amaryllis Johnstoni, 302*
- American Fringe Tree, 180*
- American Peony Society, 332
- American Rose Society, 60, 296, 332
- Ampelopsis, 90
- Anchusa, Opal, 222
- Ancient Ideas, 273
- Andromeda, Japanese, 171
- Andromedas, 172
- Angell, H. E., photos by, 169, 170
- Annuals, hardy and other, 87*
- Another Large Silver Bell, 16
- Aphis, 326
- Apple Shiawasse Beauty, 93*
- Apple, Sweet Bough, 16
- Apple-Tree's Visitors, 200
- Apple, White Pippin, 221
- Apricot, 177*
- Arbor, 320*
- Arbor, Moon Vine, 311*
- Arch, 321*
- Arcieri, Chas. F., June cover design
- Arctostaphylos uva-ursi, 173*, 174
- Arendsi Astilbes, 237*
- Art of Planting Trees and Shrubs, 180
- Artful Aids to Service, 204*
- Aster Glen Eyre, 94*
- Asparagus Beetles, 278
- Asparagus Stems Bare, 316
- Astilbes, 237*, 238*
- Astilbes, New Race of Hardy, the, 237*
- Attractive to Humming Birds, 221
- Atwater, C. G., article by, 292
- Barberry, New Evergreen, 173*
- Basket, Wire, 318
- Bastin, S. Leonard, articles by, 34*, 128*, 160*, 246*; photographs by, 34, 130, 160, 248
- Beans, 276, 314
- Bean Anthracnose, 278
- Bearberry, 174
- Bearberry, native, 173*
- Beautiful Pepper Vine, 14*
- Beckman, T. Woods, article by, 309
- Bedford, Geo. H., article by, 159
- Beetle, Asparagus, 278
- Beetle, Black, 326
- Beetle, Flea, 316
- Beetle, Peach Tree, 316
- Beetle, Steely-blue, 316
- Beetle, Turnip, 278
- Beet, Dark Leaved Globe, 93*
- Beet, Detroit Dark Red, 271
- Beets, 276, 314
- Begonias, Winter Flowering, by J. P. Verrees, February cover
- Bell, G. G., article by, 309
- Benches, Stone, 320*
- Berberis verruculosa, 173*
- Bermuda Spice Lily, 302*
- Best radishes, 271
- Bird Bath, 236*
- Bird Bath, Sharonware, 320*
- Bit of Paradise, a, 258
- Blue and Gold, 271
- Blow-Torch as a Garden Weapon, 309
- Bocconia cordata, 19*
- Books, Recent, 40, 290, 298
- Border, Iris, edged with alpines, 310*
- Border, preparing the, 58
- Box, Japanese, 172*
- Box, one that is hardy, 173
- Brass tray, 48*
- Brent, Hally Carrington, article by, 272
- Bridging the Gap from Winter to Spring, 166*
- Brinton, Elinor S., article by, 84*
- Brinton, Elinor S., photograph by, 84
- Broad-leaved Evergreens for American Gardens, 171*
- Brown rot, 316
- Brownson, Winnina E., article by, 162
- Brussels Sprouts, 287*
- Buddleia, 84*
- Buddleia Farquharii, 94*
- Bugs, 323*
- Building a Home, 223
- Bulbs and Peonies, 272
- Bulbs, Summer, 240*
- Burke, Anna M., article by, 231, 288*; plan by, 231
- Burton, K. B., article by, 165*; photographs by, 165
- Bush Honeysuckle, 89*
- Butterfly Bush, 84*
- Buxus Japonica, 172*
- Buxus microphylla, 173
- Buxus sempervirens, 173
- Cabbage, 276
- Cabbage, Chinese, 231
- Cabbage Leaves, Holes in, 278
- Cabbage Root-worm Maggot, 27
- Cabbages, 314
- California Dahlia Growers Unite, 260
- Canna, is King Humbert the Best? 221
- Calluna vulgaris, 174
- Canning, 289*, 317*
- Canning outfit, 289*, 319*
- Can We Have Winter Flowers? 83
- Carnations, Comments on New, 182
- Carrots, 276, 314
- Carrots, Forcing, 93*
- Carter, Albert F., article by, 273.
- Case, M. R., article by, 271
- Caterpillars on tomato plants, 278
- Cauliflower, 314
- Cel'eric, 287*; 314.
- Celery, 276, 314
- Celery, Less Ground; More, 298
- Centaurea dealbata, 20*
- Centranthus ruber, 19*
- Chamberlin, John W., article by, 13, 83, 310
- Chart for planning the garden on a per person unit, 27*
- Cherries, Maggoty, 316
- Chiogenes serpyllifolia, 174
- Chionanthus virginiana, 180*
- Chrysanthemum, 226*
- Chrysanthemum Anola Wright, 91*
- Chrysanthemum Helen Lee, 91*
- Chrysanthemum Katewood, 91*
- Chrysanthemum Little Gem, 91*
- Chrysanthemum Margaret Waite, 91*
- Chrysanthemum Miss Ruth S. Bergen, 91*
- Chrysanthemum Mrs. Albert Phillips, 91*
- Chrysanthemum Mrs. Harrison Craig, 91*
- Chrysanthemum Pink Simplicity, 91*
- Chrysanthemum Romaine Warren, 91*
- Chrysanthemum single early flowering, 20*
- Chrysanthemum varieties for garden flower, 227
- Chrysanthemum Virginia Holden, 91*
- Chrysanthemum Yellow Normandie, 91*
- Chrysanthemum Yondota, 91*
- Chrysanthemums de Luxe, 159
- Chrysanthemums for the greenhouse, 90
- Chrysanthemums for your garden, 90
- City Lot, Utilizing a, 62*
- Clarke, Mrs. Greenleaf, article by, 235*; photographs by, 235, 236, 237
- Climbers, newer hardy trailers and, 90*
- Club and Society News, 60, 124, 198, 256, 296, 332
- Colgate, Arthur E., photographs by, 276, 277, 280, 317, 319
- Color Combination, 271
- Companions for Larkspurs, 262
- Compulsory Gardener, 223
- Concerning Lavender Sweet Peas, 202
- Concerning the Best Pea, 221
- Contest, Garden Beautiful, at Williamsport, Pa., 198
- Corema Conradii, 174
- Corn, 231, 276, 314
- Cornus amomum, 179*
- Cotton in New England, 222
- Cowberry, 174
- Crocus, 160*
- Crocuses, guarding the, 160*
- Crops, for the June garden, 276
- Crowberry, 174
- Crown Grafting; An Easy Way to Make Over Old Trees, 244*
- Cucumbers, 276, 314, 315
- Cucumber Beetle, The Striped, 278
- Cultivating Vacant Lots, 60
- Currant Season, to prolong, the, 317
- Cut Worm, 278, 324, 326
- D. J. H., article by, 14
- Daffodils, by J. P. Verrees, March cover
- Dahlia, 14, 240*, 241*
- Dahlia, Cactus, 226*
- Dahlia Cherry Malotte, 241*
- Dahlia Collarette, 226*
- Dahlia, decorative type, 226*
- Dahlia Doesn't Flower? 309
- Dahlia F. Earl James, 240*
- Dahlia Fantastique, 241*
- Dahlia from Seed in April, 162
- Dahlia Growers of California Unite, 260
- Dahlia in Minnesota, 83
- Dahlia King of Shows, 241*
- Dahlia Mrs. A. K. White, 241*
- Dahlia Mrs. Frederick Grinnell, 240*
- Dahlia, Peony-flowered, 225*
- Dahlia, Pompon, 227*
- Dahlia Ruth van Fleet, 241*
- Dahlia, single, 227*
- Dahlia, The Millionaire, 241*
- Dahlia, varieties for continuous flower, 226
- Damson plum, 311*
- Daphne Cneorum, 171*, 173
- Daphnes, Fragrant Flowered, 192
- Dean, Ruth, article by, 95*, 322*; plan by, 95
- Delphinium Zalil in Pennsylvania, 160
- Deutzia discolor, 80*, 228*
- Deutzia glomeruliflora, 228*
- Deutzia gracilis, 179*
- Deutzia kalmiaeflora, 229*
- Deutzia Longifolia Veitchii, 89*
- Deutzia myriantha Fleur de Pommier, 228*
- Deutzia rosea, 229*
- Deutzia rosea campanulata, 229*
- Deutzia rosea grandiflora, 229*
- Deutzia Vilmorinae, 228*
- Dianthus alpinus, 310*
- Disease, Lily, 326
- Diseases, the best to be done with, 324
- Do Sprays Cause Any Injury? 325*
- Dogwood, Swamp, 179*
- Donaldson, F. W., article by, 223
- Doing Up the Surplus from the Garden, 289*
- Double Glass and Other Things, 310
- Doyle, H. W., article by, 282*; photographs by, 282, 283
- Dugmore, A. R., photograph by, 287
- Dulles, John Welsh, article by, 159
- Dunbar, Evelina, article by, 60
- Dunbar, John, articles by, 14*, 15*, 228*
- Dust Gun, 324*
- Dwarf Apple, Bismarck, 99*
- Dwarf Apple Tree, 177*
- Dwarf Fruit Tree, where it fits, 99*
- E. C. H., article by, 244*; photograph by, 246
- Early Start Indoors, Getting an, 20
- Easily Grown Perennials That Flower Quickly From Seed, 18*
- Eastwood, Sidney K., article by, 36*
- Easy Plans That Will Really Work, 28*
- Echinops (see Globe Thistle)
- Edgings for Rockeries, 310*
- Edgings, rockery, 230*
- Edgings, the rockery idea in, 230*
- Editor—Why not let him know? 273
- Eldredge, Arthur G., photographs by, 58, 101, 169, 171, 179, 238
- Empetrum nigrum, 174
- Endive, 314
- Endive, French, 288*
- Epigaea repens, 174
- Espalier apples, 100*
- Evergreens, broad-leaved, for American gardens, 171*
- Evodia Danielii, 15*
- Evolution of My Garden, 235*
- Evonymus, creeping, 173
- Evonymus radicans, 174
- Evonymus radicans, var. vegetus, 173*
- Exochorda Giralddi Wilsoni, 89*
- Expandable Garden Plan with Rose Arbor, 22*
- Experience with Plant Forcers, 83
- Farm Land, Cheap, 208
- Farrington, E. I., articles by, 96*, 285*; photographs by, 96, 97, 286
- Fearing, Alden, article by, 325*
- Fellows, Mrs. K., article by, 159
- Fence, made of dwarf apple trees, 100*
- Fernery in a Single Pot, making a whole, 34*
- Ferns in pots, 34*
- Fertility, Keeping up, 277*
- Fertilizer, making a, 46
- Flea-beetles, 316
- Flower Boxes, Summery, 206*
- Flower holders, new, 142*
- Flower Lover, article by, 159
- Flowers, Preserving, 273
- Flower Roots, Summer, 240*
- Flower Roots, Summer, for Present Planting, 225*
- Flower Shop, a Phonograph Advertises this, 309
- Flower Show, New York Annual, 124, 256*
- Flowering Evergreens, by J. P. Verrees, April cover
- Flowering Shrubs as Hedge Plants, 24*
- Flowering Shrubs, Trimming of, 208
- Flowers in Spring, 311
- Flowers, Prepare in May for Winter, 238*
- Flowers, Showy and Fragrant, 173
- Fragrant Flowered Daphnes, 192
- Frames, 102*, 273*
- Fraser, Samuel, articles by, 15, 99*, 150, 177*, 221; photograph by, 326
- Frederickson, Olaf P., article by, 159
- Free, M., article by, 84
- French Doors Instead of Draperies, 208
- Friendship Garden Club of Chicago, 296
- Fringe Tree, American, 180*
- Fruit Jars, 317*
- Fruit Trees, Planting of, for Home Use, 177*
- Fruiting the Papaya in the Greenhouse, 222*
- Fruits, 92*
- Fruits, stone, 134
- Foes, Routing our Common, 325*
- Forcing for Easter Flower, 20*
- Furniture, Garden, 320*, 321*

INDEX TO THE GARDEN MAGAZINE

- Gap, Bridging the, from Winter to Spring, 166*
- Galloway, J. C., article by, 222*; photograph by, 222
- Garden, 97*
- Garden, a Hillside, 272*
- Garden, a Social Service, 198
- Garden Beautiful Contest at Williamsport, Pa., 198
- Garden by the water side, 165*
- Garden Club, Friendship of Chicago, 296
- Garden Club of Ridgewood, 296
- Garden Club, Organizing a, 296
- Garland Flower, 173
- Garden Furniture, July Cover, by J. P. Verrees
- Garden Furniture, Selecting, 322
- Garden Furniture that Fits, 320*
- Garden Home, Inside the, 204*
- Garden, July, 313
- Garden Made on a Rock Ledge, 96*
- Garden, making a vegetable, in a rush, 194
- Garden Plot, a small, 162
- Garden Soils, Why they need nitrates, 118
- Garden, The Evolution of My, 235*
- Garden, The Patriotic, 275*, 313*
- Garden, The Way to Start the New, 313
- Garden tools, 282*
- Garden Weapon, Blow-Torch as a, 309
- Gardener, A Compulsory, 223
- Gardens, Hospitable, 32*
- Garekol, S. H., article by, 273
- Garland Flower, 171*
- Gaultheria procumbens, 174
- Gazing Globe, 321*
- Getting an Early Start Indoors, 20*
- Gladiolus, 227*, 242*
- Gladiolus Badenia, 242*
- Gladiolus Peace, 242*
- Gladiolus Prosperity, 242*
- Gladiolus, ruffled, 242*
- Gladiolus varieties for succession, 225
- Gladiolus War, 242*
- Glass, Double, 310
- Globe Thistle, 19*
- Globe Thistle, Is it a bad weed? 159
- Globe Thistle, More about the, 272
- Gooseberries for Table use, 15
- Gordonia altamaha, Why So Little Grown? 223*
- Grafting, Crown, 244*
- Graves, Nathan R., photographs by, 15, 85, 100, 101, 122, 171, 174, 177, 178, 180, 228, 229, 232, 233, 288, 315
- Greenhouse in April, 166
- Greenhouse in May, 238*
- Greenhouse Business, Starting in the, 44
- Grenville, M., article by, 271
- Ground Covers, 173
- Growing Crops for Winter and Summer, 28*
- Guarding the Crocuses, 160*
- Halesia (Silver Bell), large, 16
- Hamamelis virginiana, 122*
- Hamblin, Stephen E., article by, 30*
- Hand cultivator, 277*
- Hansen, Albert A., article by, 222*; photograph by, 222
- Havemeyer, Theo. A., article by, 232*
- Heathers, 173*
- Hedera Helix, 174
- Hedge, 170*
- Hedges, Samuel O., article by, 13
- Helping the Plant Dealer, 136
- Herrick, E., articles by, 16, 167*, 262; photos by, 167, 168
- Hibiscus, 20*
- Higgins, M. M., article by, 200
- Hillside Garden, a, 272*
- Hoe, 276*, 286*
- Hoing and Weeding—What it does, 286*
- Hollies, Native and Japan, 172
- Holly, American, 172
- Holly, Japanese, 172*
- Home, Building a, 223
- Home Vegetable Gardens a Patriotic Duty, 231
- Honey Dew Melon, 92
- Hood, G. W., article by, 162
- Hortulus, article by, 116
- Hospitable Gardens, 32*
- Hot Water Hot Bed, 42
- Houdek, R., article by, 309
- Houses, Restoring old, 48*
- How the Modern Lilac Came to Be, 232*
- How to Pot a Plant, 246*
- Humming Birds, Attractive to, 221
- Humming Birds, to the Lovers of, 159
- Ideas, Ancient, 273
- Ilex Aquifolium, 172
- Ilex crenata, 172*
- Ilex glabra, 172*
- Ilex opaca, 172
- Indigoferas for Late Flower, 254
- Inkberry, 172*
- Insect Injury, complete insurance against, 324
- Insects, 323*
- Inside the Garden Home, 48*, 140*, 204*, 334*
- Insurance by Protection, 250
- Irises, My Hobby in Raising New, 290
- Iris, New German, Mrs. Sherwin-Wright, 87*
- Irrigation, 280*
- Irrigation pipes, 280*
- Irrigation system, how to select an, 280
- Irvine, Camille Hart, article by, 13
- Is King Humbert the Best Canna? 221
- Is the Globe Thistle a Bad Weed? 159, 272
- Italian View of our Rose Craft, 310
- Japanese Plum, 159
- Johnson, E. S., articles by, 16, 160
- Judd, A. H., article by, 122*, 192, 254
- July Garden—A Goldmine, 313
- June Garden Crops, 276
- June Thinning for Later Winning, 284*
- Kains, M. G., articles by, 16, 52*; photographs by, 52, 54
- Kale, 276
- Kalmia, 171*
- Kalmia angustifolia, 172
- Kalmia glauca, 172
- Kalmia latifolia, 172
- Kalmia, the glory of the, 172
- Keeney C. N., article by, 221
- Kerr, G. W., articles by, 18*, 56*, 225*; photographs by, 19, 20, 225, 226, 227
- Kimball, W. S., photograph by, 223
- Kirkpatrick, E. L., article by, 26*; diagrams by, 26, 27
- Knotweed, Japanese, Weedy Tendencies of the, 222*
- Kohlrabi, 288*, 314
- Kruhm, Adolph, articles by, 103*, 287*; photographs by, 103, 287, 288
- L. B., article by, 160*, 223*, 234*
- L. R., article by, 296
- Lacy, Mrs. Ida, article by, 159
- Lacquer ware, 48*
- Lane, Bernard H., article by 15*; photograph by, 15
- Larkspurs, Companions for, 262
- Lawn Clippings, 277, 315
- Lawns: Cutting Old and Seeding New, 174
- Lawns Wherever Grass Will Grow, 175*
- Landscape articles fit, where, 83
- Lead Figures, 320*, 321*
- Leaf, a large, 60
- Leeks, 287*
- Lemoine, Victor, Plant Hybridist, 234*
- Lennox, L., article by, 294
- Less Ground; More Celery, 298
- Lettuce, 276, 314
- Lettuce Brittle Ice, 93*
- Leucothoe Catesbaei, 173*
- Levick, Edwin, photographs by, 237, 256
- Lilac, 232*, 233*
- Lilac, Miss Ellen Willmott, 233*
- Lilac, Modern—How it came to be, 232*
- Lilacs, Hybrid, 180*
- Lily Mrs. Sargent's, 160*
- Lima Beans, 231
- Lime spreader, 175*
- Linnaeus, 98*
- Little Bit of Experience, 13
- Locust, 17-year, where it is due, 196
- Lonicera amoena Arnoldiana, 89*
- Lonicera Henryi, 174
- Lonicera Notha, 89*
- Lookout, On the, 221
- Lot, treatment of the long narrow, 95*
- Madonna Lily, by J. P. Verrees, May cover
- Mahonia Aquifolium, 173
- Mahonia repens, 173*
- Making a Whole Fernery in a Single Pot, 34*
- Making and Using Paper Pots, 116
- Making the Garden Safe for the Summer, 280*
- Making the Rose Garden, 128*
- Malkiel, L. A., article by, 221
- Management, a question of, 110
- Manufacturers, Spray, 13
- Manure, Liquid, 315
- Massachusetts Horticultural Society's Spring Show, 258
- Matilija Poppy, 14*
- Mattern, J. R., article by, 284*
- Mayflower, 174
- McCollom, W. C., articles and photographs by, 20*, 102*, 166*, 238*, 21, 99, 102, 166, 167, 239
- McFarland Co., J. Horace, photographs by, 14, 89
- McMurray, Jessica, article by, 165*; photographs by, 165
- Melish, Lawson, article by, 326*
- Meller, C. L., article by, 322*; photograph by, 322
- Melon Honey Dew, 93*
- Mexican Tuberose, Experience with, 159
- Miller, Wilhelm, article by, 169*
- Mistry, Th. G., article by, 160
- Mitchella repens, 174
- Mixtures of Sweet Pea in balanced quantities, 200
- Mobilizing Crops for Winter, 317*
- Modern Covers Are Liked, 85
- Moles, 326
- Month's Reminder, 16, 85, 163, 224, 273, 311
- Morgan, F. Cleveland, article by, 310; photographs by, 310*
- Mormon, James B., article by, 118
- Morning Glory, double, 94*
- Mountain Laurel, 171*
- Mountain Spurge, 174*
- Mrs. Booth's Group, 256*
- Much Ado About Planting, 165*
- Muskmelons, 276
- My Hobby in Raising New Irises, 290
- Narcissus cyclamineus, 271
- National Rose and Peony Gardens, 124
- Native plants for general planting, 171*
- Neviusia alabamensis, 85*
- New Acquaintances, 84
- New Deutzias Better Than the Old, 228*
- New Race of Hardy Astilbes, 237*
- New White Alum-root (Heuchera), 15
- New York International Flower Show, 124, 256*
- Nicholas, Rev. Otto L., article by, 311
- Night Lamp, 50*
- Nitrates, why soils need, 118
- Nitrogen of Sulphate, 292
- Novelties, 87*
- Novelties in Summer Flower Roots and Bulbs, 240*
- Nozzle, 280*
- Nut Tree, worth of a, 106*
- Olds, N., article by, 309
- On the Lookout, 221
- One Best Bet for the Woman, the, 271
- Onions, 276, 313
- Onlooker's Thoughts About Plant Names, 97
- Orange rust, 278
- Organizing a Garden Club, 296
- Overhead system of irrigation, 280*
- Oxytropis hybrida grandiflora, 87*
- Pachysandra terminalis, 173, 174*
- Pachystima Canbyi, 173*, 174
- Pachystima myrsinites, 174
- Pansies Can Be Grown in the South, 300
- Papaver nudicaule, 19*
- Papaw, 222*
- Papaw, Transplanting the, 160
- Papaya, Fruiting the, in the Greenhouse, 222*
- Paper Pots, Making and Using, 116
- Patriotic Garden, 275, 313*
- Patterson, J. M., articles by, 132, 194, 250, 279, 328
- Pea, Concerning the best, 221
- Pea Market Surprise, 93*
- Peas, 276, 231, 314
- Peach, Rochester, 93*
- Peach Trees, To Hasten Young, 16
- Pearl Achillea, 19*
- Pearl Bush, 89*
- Peonies, 96*
- Peonies and bulbs, 272
- Peony Lovers, for (Book review), 298
- Peony Society, American, 332
- Pepper Vine, 14*
- Perennial border, 235*
- Perennials for Succession of Bloom, 167*
- Perennials from Seed, raising, 56*
- Perennials, Hardy Herbaceous, 88
- Perennials that flower quickly from seed, 18*
- Perrine, U. R., article by, 126
- Persian Yellow Rose, 161*
- Personal Experiment is a Delight, 15
- Pest, burrowing, 323*
- Pest, sucking, 323*
- Petit, John, photograph by, 33
- Philadelphia Rose Festival, 258
- Phlox, 167*
- Phlox argillacea, 87*
- Phonograph Advertises this Flower Shop, 309
- Pieris floribunda, 172*
- Plan for 18 x 30 or 35 ft. garden plot, 27*
- Plan for 40 x 50 ft. vegetable plot, 26*
- Plan for 50 ft. square vegetable garden, 231*
- Plan, Garden, with Rose Arbor, 22*
- Planning on a per person basis, 27*
- Plan for a long narrow lot, 95*
- Plan, Planting, 22*
- Plans, working, 28*
- Plant Acquaintances, making new, 84
- Plant Dealer, helping the, 136
- Plant enemies, 278
- Plant forcers, experience with, 93
- Plant Lice, 278
- Plant Material, School of, 309
- Plant Names, 97
- Plant Now and Grow Salad in Your Cellar All Winter, 288*
- Plants, new, 124
- Plants for Northern regions, 150
- Planting, 26*
- Planting, April, 163
- Planting, Evergreen and Deciduous, 132
- Planting for Privacy of the Home, 169*
- Planting for simple color harmony, 165*
- Planting for succession of flowers, 167*
- Planting for the South, 132, 194, 250, 279, 300, 328
- Planting, Foundation, 30*
- Planting Fruit Trees for Home Use, 177*
- Planting, July, 311
- Planting, June, 273

INDEX TO THE GARDEN MAGAZINE

- Planting Line to Feed the Fighting Line, 276*
- Planting, March, 85
- Planting, May, 224
- Planting, Much ado about, 165*
- Planting on the Basis of Personal Needs, 26*
- Planting on the Coast, 279
- Planting Potatoes, 309
- Planting Trees and Shrubs, Art of, 80
- Plants, transplanting, 282*
- Poinsettia Cuttings, a trick with, 159
- Poinsettias for Christmas, 239
- Polygonum cuspidatum, 222*
- Pool, 321*
- Pool, artificial Waterlily, 96*
- Poppy, Every-changing, 60
- Poppy, Iceland, 19*
- Poppy, Matilija, 14*
- Poppy, Plume, 10*
- Porch, Harvey W., photograph by, 325
- Potato Bug, 323*
- Potato bug on egg-plant, 278
- Potatoes, 231
- Potatoes, a simple way to plant, 309
- Potatoes, this year prize, 186
- Potted plants, 248*
- Potting a Plant, 246*
- Powell, E. P., article by, 179*
- Preparations for summer flowers, 102*
- Prepare in May for Winter Flowers, 238*
- Preservation of Wild Flowers, 126
- Preserving Flowers, 273
- Primrose, Alpine, 13
- Primulinus hybrid, 227*
- Privacy of the Home, Planting for, 160*
- Privet Hedges, Trimming of, 208
- Programme at Ithaca, 60
- Progressive Society, A, 198
- Pruning, Summer, a Success, 311*
- Protection, Insurance by, 250
- Protecting Trees against Animals, 52*
- Pumpkins, 314
- Question of Management, a, 110
- Radishes, 276, 314
- Radishes, Crimson Giant and Icicle, 161, 271
- Raising Perennials from Seed, 56*
- Ramsdell, W., article by, 27
- Raspberry, Brinkle's Orange, 14
- Raspberry, Syracuse, 93*
- Rathbone, Alice, article by, 230*; photographs by, 230
- Readers' Service, 44, 208
- Reading, H. G., articles by, 112, 221
- Real Lawns Wherever Grass Will Grow, 175*
- Recent Books, 40, 290, 298
- Recruiting New Forces, 314
- Reid, Buford, articles by, 222, 300, 309
- Reliable Vegetables for Present planting, 287*
- Renewing an Old Strawberry Bed, 202
- Repotting plants, 239*
- Rhododendrons, 171
- Richardson, H. H., articles by, 16, 202
- Ridgewood, N. J., 296
- Right up in the Front Seats! 160
- Robinson, Effie M., article by, 317*
- Rock Garden, 96*
- Rock garden surrounding a well, 310*
- Rockery Idea in Edgings, 230*
- Rockeries, Edgings for, 310*
- Rogers, R. E., article by, 114
- Rockwell, F. F., articles by, 160, 280*, 323*
- Romneya Coulteri, 14*
- Root Crops for big Values, 275
- Root-worm Maggot, Cabbage, 27
- Rose Admiral Ward, 94*
- Rose Arbor, 22*
- Rose bush, 128*, 130*
- Rose-covered arch, 236*
- Rose Craft, Italian View of our, 310
- Rose Festival, Philadelphia, 258
- Rose Garden, making the, 128*
- Rose Hugonis, 80*
- Rose Lillian Moore, 80*
- Rose Mme. Collette Martinette, 80*
- Rose of Sharon, 179*
- Rose Persian Yellow, 161*
- Rose, Rambler, Dorothy Perkins, 13
- Rose Society, American, 60, 296, 332
- Roses, 88*, 112, 133
- Roses, A Spraying Calendar for, 260
- Roses for Washington Conditions, 112
- Roses, Managing the, 112
- Roses transplanted in summer, 294
- Routing our Common Foes, 326*
- Rudbeckia speciosa, 19*
- Rustic seat, 32*
- Rutabagas, 314
- Rutledge, Archibald, articles by, 106*, 186; photographs by, 106, 10,
- Salad planted in June, 288*
- Sammond, H. S., article by, 62*; plan by, 64
- School of Plant Material, 309
- Screen Tray, home-made, 319*
- Scott, Jas. T., article by, 182
- Second Crop, Sowing for, 310
- Seed-growing, 132
- Seed Necessity for 1918, 313
- Seed Pan, 166*
- Seeds started in Summer, 273*
- Seeds started in the windows, 162
- Selecting Garden Furniture that Fits, 322
- Septic Tank for the Country Home, 36*
- Seymour, E. L. D., photograph by, 175
- Shawen, H. B., article by, 311*
- Shawen, H. B., photograph by, 311
- Shrub transplanted out of season, 322*
- Shrubs, Flowering, as hedge plants, 24*
- Shrubs for Use and Ornament, 179*
- Shrubs, hardy, 94*
- Shrubs, low growing flowering, 31*
- Sieve, Wire, 318*
- Simple way to Plant Potatoes, 309
- Simplifying Garden Warfare, 323*
- Sinclair, Gladys Hyatt, article by, 24*, 25, 31
- Skirmishing Orders of the Month, 316
- Small Garden Plot and the High Cost of Living, 162
- Snapdragons, What's Worth While in, 285*
- Snow Wreath! Why So Rare? 85*
- Snowberry, 170*
- Snowberry, Creeping, 174
- Social Service Garden, 198
- Society, A Progressive, 198
- Society Notes and News, 60, 124, 198, 296, 256, 332,
- Soil for seedlings, 16
- Some Good Plants for Northern Regions, 150
- Some Good Things Found, 159
- Sowing and Planting, 224
- Sowing for Second Crop, 310
- Sowing seeds, 21*
- Spencer, J. H., photo by, 170
- Spiraea Henryi, 89*
- Spiraea Van Houtte's, 25*
- Spray Pump, 324*
- Spray Manufacturers Take Notice, 13
- Sprayer, Barrell, 325*
- Sprayer, Kirke, 326*
- Sprayer, Knapsack, 324*
- Sprayer on wheels, 326*
- Spraying, 323*
- Spraying Calendar for Roses, 260
- Spraying Outfit, 325*
- Sprays—Do they cause any injury? 325*
- Spring Cleaning, 16
- Spring Flowers, 311
- Spring Show of Massachusetts Horticultural Society, 258
- Sprinkler, 281*
- Starting Seeds for an Early Garden, 16
- Starting Seeds in Summer, 273*
- Starting Seeds in the Windows, 162
- Starting the new garden, 313
- Stoddard, G. O., photograph by, 160
- Strang, Elizabeth Leonard, article by, 22*; plans by, 22, 23
- Strawberry Bed, Renewing an old, 202
- Strawberry Plants, Potted, 317
- Strawberry Plants, Raising, 274
- Strawberry Plants, sickly looking, 278
- String Beans, 231
- Sturtevant, Grace, article by, 290
- Sturtevant, R. S., article by, 311
- Succession of Bloom, Perennials for, 167*
- Sugar Corn Aristocrat, 93*
- Sulphate, Nitrogen of, 292
- Summer Flower Roots for Present Planting, 225*
- Summer Pruning a Success, 311*
- Summery Flower Boxes and Other Things, 206*
- Sundial, a classic, 320*
- Sundial, to correctly set a, 46
- Supplies, getting uninterrupted, 275
- Surplus from the Garden, Doing up the, 289*
- Swamp Dogwood, 179*
- Sweet Bough Apple, 16
- Sweet Corn, Which and Why? 103*
- Sweet Corn, Carpenter's Golden Sweet, 104*
- Sweet Corn, Golden Rod, 104*
- Sweet Corn, Golden Sugar, 103*
- Sweet Corn, Howling Mob, 104*
- Sweet Corn in October! 309*
- Sweet Corn, Original Crosby, 104*
- Sweet Corn, White Evergreen, 103*
- Sweet Pea Mixtures in Balanced Quantities, 200
- Sweet Peas, Concerning Lavender, 202
- Swiss Chard, 277
- Syringa oblata, 322*
- Syringa, Old-fashioned 25*
- T. F. R., article by, 161
- T. S., article by, 311*; photograph by, 311
- Terrace, the patterned flag, 165*
- Thatcher, A. E., articles by, 161*, 222, 237*
- Thinning, June, for later Winning, 284*
- This Year—Prize Potatoes! 186
- Thomas, Sarah P., article by, 272
- To Hasten Young Peach Trees, 16
- To the Lovers of Humming Birds, 159
- Tomato plant, 283*
- Tomatoes, 231, 277, 315*
- Tomlinson, Bland N., article by, 272*; photograph by, 272
- Tools used in transplanting, 282*
- Tray Dryer, Hot Water, 319*
- Trailers, 173
- Transplanting Big Trees, 44
- Transplanting Out of Season, 322*
- Transplanting Roses in Summer, 294
- Transplanting the Papaw, 160
- Transplanting Vegetables to Economize on Space, 282*
- Treatment of the Long Narrow Lot, 95*
- Tree, Black Walnut, 106*
- Tree, Shellbark Hickory, 108*
- Trees and Shrubs, art of planting, 180
- Trees, Evergreen and Deciduous, 92
- Trellis, 237*, 321*
- Trellis used for dwarf fruit trees, 101*
- Trellis-arch, 320*
- Trick with Poinsettia Cuttings, 159
- Triem, Paul E., article by, 286*; photograph by, 286
- Trimming Privet Hedges and Flowering Shrubs, 208
- Tritoma, New-Perpetual, 19*
- Troth, Henry, photographs by, 28, 31, 32, 325
- Trumbull, E. E., article by, 289*; photograph by, 289
- Tubs, Terra Cotta, 321*
- Tucker, Wm., Jr., photographs by, 175, 176
- Turnip Beetle, 278
- Turnips, 277, 314
- Useful Things, 50*
- Vaccinium Vitis-idaea, 174
- Valerian (Centranthus ruber), 19*
- Variegated Vine? What's this, 85
- Vegetable Garden, 315*
- Vegetable Gardens, Home—A Patriotic Duty, 231
- Vegetable Garden Making in a Rush, 194
- Vegetable Jars, 317*
- Vegetable planting diagrams, 26, 27
- Vegetables, 92*
- Vegetables, companion cropping for, 232
- Vegetables for June planting, 287*
- Vegetables that don't have to be stored, next winter's, 275
- Vegetables, Transplanting, 282*
- Verrees, J. P., cover designs by, February, March, April, May, July
- Vinca minor, 173
- Vine, one hardy evergreen, 174
- Vine for Quick Effects, 311*
- Visitors of the Apple Tree, 200
- W. C. M., article by, 273*; photograph by, 273
- Wagener Apple Tree, 178*
- Wall, brick, 320*
- Walls, 101*
- Walls in America, 100*
- Walters, Mrs. R. W., article by, 272
- War Garden, Planting the, 271
- War Times, June cover by Chas. F. Arcieri
- Waterbury, H. E., article by, 112
- Waterlilies, 96*
- Watermelon Stem End Rot, 252
- Wagh, Frank A., photograph by, 99
- Weedy Tendencies of the Japanese Knotweed, 222*
- Weigela, 25*, 180*
- Welch Bros., article by, 42
- What Can Grow Close to the House? 30*
- What Hoeing and Weeding Does, 286*
- What I did with a City Lot and a two-family House, 62*
- What I like, 13
- What's New This Season, 87*
- What's This Variegated Vine? 85
- What's Worth While in Snapdragons, 285*
- Wheel Hoes, 114, 277*, 315
- When a Little Glass is Appreciated, 102*
- When Doctors Differ, 242
- Where Landscape Articles Fit, 83
- Where the Dwarf Fruit Tree Really Fits, 99*
- Where the 17-Year Locust is due, 196
- Which Sweet Corn and Why? 103*
- White, Elizabeth, article by, 32*
- White Pippin Apple, 221
- Who's Got Brinkle's Orange Raspberry? 14
- Why Garden Soils Need Nitrates, 118
- Why Not Let the Editor Know? 273
- Wild Flower Preservation, 126
- Wilder, Louise Beebe, articles by, 83, 84, 272
- Wilkinson, A. E., article by, 83
- Wilson, E. H., article by, 171*; photographs by, 172, 173
- Wilson E. H. in Japan, 311
- Wilson, Fred A., article by, 97
- Wilson, W. L., photograph by, 302
- Winter Flowering Begonias, by J. P. Verrees, February cover
- Winter Flowers? Can we have, 83
- Wire Worm, 326
- Wistaria Does Not Flower, 83
- Witch Hazel, 122*
- Witloof Chicory, 231
- Woodruff Under Shade of Trees, 13
- Word for the Persian Yellow Rose, 161*
- Worms, 316
- Worth of a Nut Tree, 106*
- Yucca filamentosa, 173
- Yucca glauca, 173
- Zapffe, Carl, article by, 14,

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INDEX TO THE GARDEN MAGAZINE

Volume XXVI—August, 1917 to January, 1918

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An asterisk () indicates that the article is illustrated*

- Acanthopanax, 123*
 After Blooming—What? 158*
 A. L., article by, 167
 All to the Good, 6
 Allen, R. E., article by, 100
 Allison, Inga M. K., article by, 132
 American Civic Association, 102
 American Gardens, English Material for, 185
 American Hort., Organization in, 166
 American Rose Society, 166
 American Sweet Pea Society, 166
 Andrews, D. M., article and photograph by, 184
 Andromeda floribunda, 16*
 Andromeda glaucophylla, 16
 Andromeda polifolia, 16*
 Andromeda speciosa, 16*
 Angell, H. E., photographs by, 134
 Annuals, Premier of All, 166
 Antirrhinum gibraltaria, 118
 A. P. S., article by, 39
 Aphids on Your Plum Tree? 164*
 Aphis, cabbage, 10
 Apple borer, 56
 Apple trees, borers in, 10
 Apples, Topworked, 184
 Apples, wormy, 56
 Arbutus, Trailing, 16
 Arctostaphylos Uva-ursi, 15
 Ardisia, 133*, 158
 Arnold Arboretum—What It Is and Does, 122*
 Arny, L. Wayne, article by, 160
 Artemisia lactiflora, 18*
 Association, American Civic, 102
 Association, Woman's Farm and Garden, 166
 Aster?—Why Does the Beetle Attack This, 117
 Asters, 17*
 Asters, dwarf, 17*
 At the Turn of Winter, 165*
 August cover, Cashing in
 Authorized Statement of the Asst. Secretary of Agriculture, 9
 Ayer, H. D., photograph by, 51
 Azalea, Indian, 159*
- Baskets filled with vegetables, 12*
 Bastin, S. Leonard, article by, 118*;
 photographs by, 90, 118, 120
 Battlefield of a Year Ago, A, 79
 Bayberry Candles, Recipe for, 172
 Beach, S. A., article by, 184
 Bean, Bush, 197*
 Bean sprout, 80*
 Beans, 10, 92*, 197*
 Beans, covered with cloth, 57*
 Beans on Strings, 80*
 Bearberry, 15*
 Beech collection, 123*
 Beetle; Why does it attack this Aster? 117
 Beetles, fruit-tree-bark, 56
 Beets, 10, 98, 197*
 Beets, storing, 85*
 Beginner's Garden, The, 188*
 Begonia, Gloire de Lorraine, 133*
 Begonia, Winter, 159
 Berry Cane, 195*
 Berry, Partridge, 16
 Big Events for St. Louis in 1918, 104
 Binders, Irises as Soil, 117
 Bird Bath, 118*
 Bird Bath. A Home-Made, 150*
 Bird—Brown Thrasher, 154*
 Bird, Cedar, 155*
 Bird Garden, 153*
 Bird House, 155*
 Bird, Indigo, 154*
 Birds, Encouraging the, 153*
 Birds, Shrubs attractive to, 154
 Blackberry Plant, 11
 Blackcap Raspberries, How to Get New Plants of, 96
 Blacklock, M. E., article by, 6
- Bloom, Spring Planting for Summer, 201*
 Blooming, After—What? 158*
 Blue, A Touch of, in the Fall Garden, 151
 "Bog" Gardening with Native Plants, 89*
 Bog Rosemary, 16
 Boilers, 127*, 128*
 Books, A Glance at the Garden, of the Year, 156
 Borers, 10, 11, 56
 Box Huckleberry, 16
 Box, Tulips in the Window, 41*
 Brasseby-Brierley, Charlotte, article by, 39
 Bright Flowers, January cover
 Brooklyn Botanic Garden, photograph by, 89
 Brooks, John A., photographs by, 14
 Broomstick Scratcher, 40*
 Broomstick Scratcher, Comment on the, 151
 Browberry, 16
 Brown Thrasher, 154*
 Budding and Grafting—How they are done, 48
 Buddleia, New, from Seeds, 117
 Buddleias; Why they Die, 119
 Bugs, Spraying Kills Young Squash, 28
 Bulbs, 120*
 Bulbs Assured, Some, 104
 Bulbs for Twelve Months, Indoors and Outside, 43*
 Bulbs Forced in a Greenhouse, 60
 Bulbs, Gladiolus, 163
 Bulb Planter, 41*
 Bulbs, Various, 159
 Burke, Anna M., article and photographs by, 158
 Bush Bean, 197*
 Bush Cherry, New Chinese, 80*
 Bush, Spindle, 16
 Bushes, borers in quince, 11
 But, Be Reasonable, 183
 Button, H. F., article, by, 86
- Cabbage, 197*
 Cabbage Aphis, 10
 Cabbage, Chinese, 40*
 Cabbage in a trench, 83*
 Cabbage Worms, 10
 Cactus, 135*
 Calopogon, purple, 91*
 Can You Cook a Potato? 134*
 Canadian Yew, 16
 Candles, Recipe for Bayberry, 172
 Cannas, 163*
 Canning?, Is the Fireless Cooker Used in, 117
 Canning Kohlrahi, 40
 Canterbury Bells and Foxgloves, Wintering, 119
 Capsicum, 159*
 Carrots, 10, 98, 197*, 198*
 Carrots, storing, 85*
 Cary, J. H., article by, 117
 Cashing In, August cover
 Cashing-In the War Gardens, 11*
 Catalogues, Getting the Best out of the, 197*
 Cauliflowers, 98, 198
 Cedar Bird, 155*
 Cedar of Lebanon, 123*
 Celery, 198
 Celery, New Method of Wintering, 80
 Celery Culture, More About Intensive, 41
 Celery, storing, 83*
 Cercidiphyllum japonicum, 125*
 Chafers, Rose, 96
 Chamberlain, John W., article by, 6
 Cherry, Jerusalem, 158
 Cherry Leaves, blistered, 56
 Chinese Bush Cherry, New, 80*
 Chinese Cabbage, 40*
- Christmas Dollar, Making the most of the, 151
 Christmas Gifts for the Gardener, 151
 Christmas Spirit of 1917, December cover, by J. P. Verrees
 Clark, F. L., article by, 5
 Clarke, H., article by, 28
 Clearing up for Winter, 120
 Climbing Hydrangea, 185*
 Club & Society News, 24, 64, 102, 138, 167, 208
 Coal, Various Ways of Saving, 196
 Coldframe, 45*, 157*
 Collards, Extravagance of, 186
 Color, Fall; in the Rock Garden, 118
 Color of Pansies, and Hot Weather, 98
 Combinations, Practical Vegetable, 132
 Comment on the Broomstick Scratcher, 151
 Compost heap, making a, 55
 Conservation, crop, 9
 Conservation, personal pointers for, 13
 Conveniences for the Cottage, 30*
 Corn, 198
 Costich, Edwin H., article and photograph by, 15
 Cotoneaster hupehensis, 124*
 Cottage, Conveniences for the, 30*
 Cottontails, We Love Our, 6
 Cover crops, 58
 Cover crops, when to grow, 9
 Cover Design, August, by J. P. Verrees,
 Cover Designs, October, November, and December, by J. P. Verrees
 Cover Design, January, by H.W. Ortlip
 Cover Design, September, by E. D. Drake
 Covering lettuce with cloth, 57*
 Crabapple, 123*
 Craftsman Woodpecker, The, 167
 Craig, W. N., articles by, 97*, 129*
 Cranberry, Mountain, 16
 Crops, packing root, 95*
 Crop Conservation and Distribution, 9
 Crops, cover, 58
 Crops, Making Real Use of the Garden's, 132
 Crocker, Orin, photograph by, 154
 Crops, Present Sowing for Extra Early, 95*
 Crops, profitable, that can be grown under glass, 129
 Croton, Reedii, 133*
 Cucumbers, 10, 198
 Cultivation, Saving Labor in Land, 21
 Currants, 51*
 Currants, Why so Few? 5
 Cutworms, 56
 Cyclamen, 159*
 Cyclamen, My Experience with, in the House, 170
- Daffodils and Tulips Planted Late, 149
 Dahlia Festivals, 64
 Dahlia Tubers, 162*
 Darwin Tulip—Did it disappoint? 5
 Day, Curtis Fisher, article by, 40
 Daylight Saving, We Want, 183
 Day-lily, Lemon-yellow, 53*
 Dean, Mrs. J., article by, 117
 December Cover, The Christmas Spirit of 1917, by J. P. Verrees
 December in the Greenhouse, 165*
 December in the South, 168
 December preparations, 152
 Delphiniums, 17
 Destruction of Fruit Bearing Trees, 140*
 Did the Darwin Tulip Disappoint? 5
 Difficulties solved by a teaspoon, 7
 Downer, H. E., article and photograph by, 185
 Drainage; why it is important indoors, 130
 Drake, E., September cover design by
- Drosera intermedia, 90*
 Drug Plant Growing; Is it Practical? 160
 Drying fruit, 26
 Dunbar, John, article by, 6*
 Duffy, S. R., articles by, 50, 119
 Dugmore, A. R., photographs by, 90, 154, 155
 Durand, Herbert, article by, 79
- Early Start, Fall Plowing for an, 136
 Early crops, Present Sowing for extra, 95*
 E. E. S., article by, 118
 Egg-plants, 57*
 Eldredge, Arthur G., photographs by, 52, 123, 165
 Electricity for Heating Frames, 125*
 Encouraging the Birds, 153*
 English Material for American Gardens, 185
 English Primrose, 151*
 Epigaea repens, 16
 Essay, Mr. Duffy's, 118
 European Grapes for America, 79
 Evergreen shrub, 52*
 Evergreens, Native; Suitable For Ground Covers, 15*
 Evonymus obovatus, 16
 Exford, Ernest C., article by, 5
 Exhibition Season, The, 138
 Experience with Cyclamen in the House, 170
 Experiment with the Potato. An, 184
 Experimenting with Hunnemannia, 149
 Extravagance of Collards, 186
- Fairchild, M., article and photo by, 40
 Fall Canker Worm, 56
 Fall Color in the Rock Garden, 118
 Fall Garden, Touch of Blue in the, 151
 Fall Made Lawn, 41*
 Fall Planting, 51*, 81
 Fall Plowing for an Early Start, 136
 Fall Sown Sweet Peas, 80
 Farrington, E. I., article by, 40*;
 photographs by, 40, 122, 123, 124
 Fay, Albert E., article by, 186
 February, Flowers in, 117
 Ferns for House Plants, 118
 Fertilizer, Gallinaceous; Handled in a Practical Way, 50
 Festivals, The Dahlia, 64
 Fetter Bush, 16
 Few Facts, A, 117
 Fireless Cooker; Is It Used in Canning? 117
 Florists; What They Will Offer in Holiday Plants, 133*
 Flower Roots, Wintering Tender, 162
 Flower on November cover—Oncidium varicosum
 Flowers, Bright; January cover
 Flowers Every Month, 6
 Flowers for the July Garden, 201*
 Flowers in February, 117
 Food Administration, Message from the, 93
 Foliage, slugs on pear, 10
 Food Administration Poster, 9
 Food and Home Economies That Can Finance the War, 54
 Food From the Greenhouse This Winter, 97*
 For the South, 26, 62, 110, 136, 168, 204
 Forcing Bulbs in a Greenhouse, 60
 Forest Hill Road, 123*
 Foxgloves, Wintering Canterbury Bells and, 119
 Frame, 47*
 Frames, Electricity for Heating, 125*
 French Orchardists, Helping the, 140*
 Fresh Vegetables; Using them wisely, 126
 Frost, protection from, 57

INDEX TO THE GARDEN MAGAZINE

- Fruit Bearing Trees, Destruction of, 140*
- Fruit, dried, 26
- Fruit, Planning for—This Year and After, 112*
- Fruit-Tree-Bark Beetles, 56
- Fruiting Shrubs, Two; for the Home Garden, 70*
- Fruits and Vegetables; Using them wisely, 87*
- Fuel Problem, Solving the, 196
- Fumigator, Home-Made Potted Plant, 184*
- G. W. A., article by, 41
- Garden, Touch of Blue in the Fall, 151
- Garden, backyard, 92*
- Garden, bird, 153*
- Garden Books of the year, A Glance at the, 156
- Garden Club Journal, International, 150
- Garden debris, use of, 96
- Garden Efficiency, Water to Increase, 13*
- Garden Enemies, 28
- Garden, Fall Color in the Rock, 118
- Garden, Flowers for the July, 201*
- Garden, getting it under glass, 130*
- Garden Home, Inside the, 30*, 108*, 174*
- Garden "Movies" No. 1, 189*
- Garden Products Stored for the Winter, 83*
- Garden, Rose; for Portland, Ore., 24
- Garden Soil, Making Next Year's, Better, 86
- Garden, suburban, 55*
- Garden, the August, 9
- Garden, The Beginner's, 188*
- Garden, Patriotic, 9*, 55*, 93*, 191*
- Garden, Two Fruiting Shrubs for the Home, 79*
- Garden, Methods of Scientific Management Applied to the Vegetable, 191*
- Garden, Plans for Vegetable, 200, 201
- Garden, War; Make it Attractive, 200*
- Gardener's Winter Pastime, A, 120
- Gardening, "Bog," with Native Plants, 89*
- Gardening for the winter, 42
- Gardening from the Outside, 81
- Gardening, High Pressure Vegetable, 100
- Gardens Add \$100,000,000 to Nation's Wealth, 93*
- Garden's Crops, Making Real Use of the, 132
- Gardens, English Material for American, 185
- Gardens, rock, 45
- Gardens, war, 11*
- Garekol, S. H., articles by, 106, 136
- Gaylussacia brachycera, 16
- Gentian, Closed, 90*
- Geraniums, 162*
- Getting the Garden Under Glass, 130*
- Geyer, O. R., article by, 93*
- Gifts, Holiday; that the Gardener Can Send, 172
- Ginder, J. W., article by, 80
- Gladiolus, 162*
- Gladiolus Bulbs, 163
- Glance at the Garden Books of the Year, A, 156
- Gloire de Lorraine Begonia, 133*
- Goodwin, Frank E., article and photographs by, 21, 22
- Gooseberries, 51*
- Grafting, 48
- Grapes, 51*
- Grapes, European, for America, 79
- Graves, Nathan R., photographs by, 6, 16, 17, 18, 40, 51, 53, 80, 93, 150, 151, 153, 158, 159, 195
- Great Hort. Meeting in New York, 24
- Greenhouse, 43*, 97*, 128*, 129, 165*
- Greenhouse Activities in December, 165*
- Greenhouse bench, 45*
- Greenhouse boiler, 127*
- Greenhouse, Bulbs Forced in a, 60
- Greenhouse, Food from the, This Winter, 97*
- Greenhouse Heating, Little Chat on, 127*
- Greenhouse, Inside the, November cover, by J. P. Verrees
- Greenhouse That Isn't Heated, 129*
- Greenhouse; With Oncidium varicosum, November cover; by J. P. Verrees
- Greenhouses, Hardy Primulas for Unheated, 150*
- Ground-Covers, Native Evergreens Suitable for, 15*
- Grubs, white, 56
- H. G. R., article by, 117
- Habenaria, 89*
- Habenarias This Season, 79
- Hall, E. J., photograph by, 55
- Hammond, Benjamin, Portrait, 81
- Handling Gallinaceous Fertilizer in a Practical Way, 50
- Hardy Primulas for Unheated Greenhouses, 150*
- Hardy Yellow Rose, The, 117
- Harris, Mrs. Floyd W., article by, 117
- Harvest is Gathered, October Cover, by J. P. Verrees
- Has No Rival, 81
- Heather?, Who Succeeds with, 5
- Heating Frames, Electricity for, 125*
- Heating, Little Chat on Greenhouse, 127*
- Heating material, 125*
- Hedge of Lupins, 39
- Helenium, 53*
- Heliotrope, 202*
- Helping the French Orchardists, 140*
- Hemerocallis citrina, 53*
- Hopkins, W., photograph by, 153
- Herbaceous Plants, Wintering, 39
- High Pressure Vegetable Gardening, 100
- Holes, flute-like, 10
- Holiday Gifts that the Gardener Can Send, 172
- Holiday Plants, What the Florists Will Offer in, 133*
- Hollyhock Chain, The Topeka, 149*
- Hollyhocks, 202*
- Home, Inside the Garden, 30*, 108*, 174*
- Home Garden, Two Fruiting Shrubs for the, 79*
- Home-made Bird Bath, 150*
- Home-made Potted Plant Fumigator, 184*
- Hood, G. W., article and photographs by, 13, 14
- Horticulture, Organization in American, 166
- Hotbed, 157*
- Hotbed Frame 126*
- House, Bird, 155*
- House, My Experience with Cyclamen in the, 170
- House Plant, Marsh Marigold as a, 7
- House Plants, Ferns for, 118
- House, Some Good Things for the Small, 108*, 174*
- Hovey, E. von R., article by, 170
- How Budding and Grafting are Done, 48
- Huckleberry, Box, 16
- Hunnemannia, Experimenting with, 149
- Hydrangea petiolaris, 122*
- Hydrangea, The Climbing, 185*
- I Say: Sow Sweet Peas in the Fall for Early Bloom, 47*
- Importance of drainage indoors, 130
- Indian Azalea, 150*
- Indigo Bird, 154*
- Ingredients, mixing soil, 131*
- Inside the Garden Home, 30*, 108*, 174*
- Inside the Greenhouse, November Cover, by J. P. Verrees
- International G. C. Journal, 150
- Iris, Spanish and German, from seed, 5
- Irises as Soil Binders, 117
- Irises, Modern; That Outclass the Old, 18
- Irrigation systems, 13*
- Is Drug Plant Growing Practical? 160
- Is the Fireless Cooker Used in Canning? 117
- January Cover, Bright Flowers
- January planting, 187
- Jerusalem Cherry, 158
- Journal, International G. C., 150
- July Garden, Flowers for the, 201*
- Juniper collection, 123*
- Kains, M. G., articles by, 51*, 194*; photographs by, 195
- Kale, 10
- Kalmia angustifolia, 16
- Kalopanax ricinifolium, 123*
- Keeping It When You've Got It, 83*
- Kerr, G. W., articles and photographs by, 47*, 80;
- Kift, Robert, article by, 133*
- Kirkpatrick, E. L., article and photograph by, 167
- Knoch, A. A., article by, 117
- Kohlrabi, Canning, 40
- Kruhm, A., article by, 157*
- Kunderd, A. E., Portrait, 81
- L. B., articles by, 64, 39, 40*
- L. G. B., article and illustration by, 184
- L. M., article by, 6
- Labor, Saving, in Land Cultivation, 21*
- Ladies' Tresses, 90*
- Land Cultivation, Saving Labor in, 21*
- Larkspur, Moerheim's, 18*
- Late M. Vilmorin, The, 64
- Late Strawberry Planting, 41
- Laurel, Sheep, 16, 91*
- Lawn, fall made, 41*
- Lawns, 93*
- Leaders of the Societies, 81*
- Leaves, beautiful, 160
- Leiophyllum buxifolium, 16*
- Lettuce, covered with cloth, 57*
- Lettuce, 10, 57, 98, 131*, 198*, 199*
- Leucocrium montanum, 184*
- Leucothoe Catesbaei, 16
- Lilies, Day, 53*
- Lily, The Sand, 184*
- Little Chat on Greenhouse Heating, 127*
- Long and The Short, The, 184
- Lounsbury, Alice, article by, 153*
- Lupins, A Hedge of, 39
- M. G. K., article by, 184
- MacArthur, J. N., article by, 127*
- MacCalbaine, H. L., article by, 185
- Mackay, A. W., article by, 117
- McCausland, Arthur, article by, 184
- McClelland, W., article by, 79
- McCollum, W. C., articles by, 43*, 125*, 165*, 188*; diagrams by, 126; photographs by, 43, 44, 45, 46, 49, 83, 85, 92, 95, 96, 97, 162, 163, 189
- Machine, spray, 14*
- Machines, 21*
- Magnolia Salicifolia, 6*
- Make Your War Garden Attractive, 200*
- Making a Lawn in Fall, 41*
- Making Next Year's Garden Soil Better, 86
- Making Real Use of the Garden's Crops, 132
- Making the Christmas Dollar Buy a Dollar's Worth, 151
- Making the Smallest Quantity Reach the Farthest, 191*
- Malus theifera, 123*
- Map of Convention Garden 1917, 24
- Map showing earliest recorded frosts, 57
- Maples, 124*
- Marsh Marigold as a House Plant, 7
- Marshall, James Collier, articles by, 30*, 108*, 174*
- Meconopsis integrifolia, 118*
- Meeting of Women Horticulturists at Chicago, 104
- Meller, C. L., articles and photographs by, 41, 135
- Melons, 10, 198
- Merrell, Nellie D., article by, 6
- Message from the Food Administration, 93
- Methods of Scientific Industrial Management Applied to the Vegetable Garden, 191*
- Milk-flowered Ragweed, 18*
- Mixing soil ingredients, 131*
- Modern Irises That Outclass the Old, 18
- Moerheim's Larkspur, 18*
- Monkshood, 18*
- Month's Reminder, 7, 42, 81, 120, 152, 187
- More About Intensive Celery Culture, 41
- Morus acidosa, 80
- Mulberry, 80
- Mulching—Successful and Otherwise, 167*
- Mushrooms, 98
- Musser, M. J., photograph by, 199
- My Experience with Cyclamen in the House, 170
- Myrtle, Sand, 16*
- N. S., article by, 41
- Nash, G. N., map by, 24
- Native Evergreens Suitable for Ground-Covers, 15*
- Native Plants, "Bog" Gardening with, 89*
- Neat Stake, 128
- Nettelroth, Cleo L., article and photographs by, 150
- New Buddleia or Summer Lilac from Seeds, 117
- New Hybrid Tree Peony, 40*
- New Method of Wintering Celery, 80
- New York Spring Show, 138
- Northend, M. H., photographs by, 12
- November Cover, The Greenhouse; with Oncidium varicosum, by J. P. Verrees
- November in the South, 136
- Nozzle, 14*
- October Cover, The Harvest is Gathered, by J. P. Verrees
- Old-Time Southern Recipes, 26, 62
- Oncidium varicosum—Flower on November cover
- One Successful "War Garden" Effort, 91*
- Onions, 57, 198
- Operations, December, 152
- Orchardists, Helping the French, 140*
- Orchid, Fringed, 89*
- Orchid, Yellow Fringed, 91*
- Orders of the Day, 96
- Organization in American Hort., 166
- Original Sundial, An, 118*
- Ornamental Pepper, 150*
- Ostlip, H. W., January Cover by
- Out of Season Transplanting, 6
- Pack, Charles Lathrop, article by, 186
- Packing root crops, 95*
- Pansies all the Year in Tennessee, 39
- Pansies, Color of, and Hot Weather, 98
- Parsnips prepared for storage, 85*
- Pastime, A Gardener's Winter, 120
- Parsnips, storing, 85*
- Partridge Berry, 16
- Patch, Edith M., article and photographs by, 164
- Patriotic Garden, 9*, 55*, 93*, 191*
- Patterson, J. M., articles by, 26, 62, 110, 136, 168, 204
- "Pay Your Money and Take Your Choice," 17*, 53*
- Peach borer, 56
- Pear foliage, slugs on, 10
- Pear, Prickly, 135*
- Pear Psylla, 56
- Peas, 10, 57, 98, 198
- Peony, A Yellow Tree, 40*
- Peony La Lorraine, 40*
- Peony, New Hybrid Tree, 40*

INDEX TO THE GARDEN MAGAZINE

- Peonies, Plant, in September, 49*
- Peonies that Fit, 39
- "Peonies that Fit," Regarding, 79
- Pepper, Ornamental, 159*
- Pepper Vine, 184
- Peppers, 198
- Perennials, hardy, 17*, 53*
- Pests, general attention to, 98
- Peterson, W. J., photograph by, 133
- Phloxes, 53
- Pitcher Plant, 90*
- Plan to Plant—The Call of 1918, 186
- Planning for Fruit This Year and After, 194*
- Plans for vegetable garden, 200, 201
- Plans, planting, 192, 193
- Plant, a "leggy," 118*
- Plant, Drug, 160
- Plant Fumigator, Potted Home-Made, 184*
- Plant Now—or Wait Till Spring? 51*
- Plant Peonies in September, 49*
- Plant, Pitcher, 90*
- Plant, Plan to, 186
- Plant, raspberry, 11
- Planter, A Bulb, 41*
- Planting, August, 7, 10
- Planting, December, 152
- Planting, Fall, 81
- Planting for the South, 110, 136, 168, 204
- Planting, January, 187
- Planting, Late Strawberry, 41
- Planting, November, 120
- Planting, October, 81
- Planting plans, 192, 193
- Planting, September, 42, 51*, 55
- Planting, Spring, for Summer Bloom, 201*
- Planting Table, vegetable, 194
- Planting to attract birds, 153*
- Planting Tulips and Daffodils Late, 149
- Planting Vegetables in Autumn, 106
- Plantings, late, 42
- Plants, Ferns for, House; 118
- Plants, Making the most of the Holiday Gift, 158
- Plants, Room; Why They Become Leggy, 118*
- Plants, What the Florists Will Offer in Holiday, 133*
- Plants, Where to Obtain Rare, 140
- Plants, Wintering Herbaceous Plants, 39
- Plot, vegetable, 200*
- Plowing, Fall, for an Early Start, 136
- Plum Tree, Aphids on your, 164*
- Poinsettia, 158*
- Pomologists to Meet At Boston, 102
- Poppies, Oriental, 53
- Poppywort, A Rare, 39
- Poster, Food Administration, 9
- Potato, 134*
- Potato, An Experiment with the, 184
- Potato, Can You Cook a, 134*
- Potatoes before storing, 83*
- Potatoes, The Storage of, 168
- Potted Plant Fumigator, Home-Made, 184*
- Potting, 44*
- Premier of All Annuals, 166
- Preparation for winter, 81
- Preparations, December, 152
- Presby, F. H., articles by, 149, 151
- Present Sowing for Extra Early Crops, 95*
- Prickly Pear, 135*
- Primrose, 160
- Primrose, English, 151*
- Primula cashmeriana, 151*
- Primulas, Hardy, for Unheated Greenhouses, 150*
- Protection from frost, 57
- Protection, Winter, 135*
- Provost, B.S., article and photos by, 118
- Prunus tomentosa, 80*
- Putting the Rose on the Map, 166
- Quince bushes, borers in, 11
- Quinces, wormy, 10
- R. R. A., article and photograph by, 41
- Radishes, 10, 57, 98, 198
- Ragweed, Milk-flowered, 18*
- Ramsey, Leonidas Willing, article and plans by, 200, 201
- Rare Plants, Where to Obtain, 149
- Rare Poppywort, 39
- Raspberry plant, 11
- Recipe for Bayberry Candles, 172
- Recipes, Old-Time Southern, 26, 62
- Recruit, Training the, September cover, by E. D. Drake
- Regarding "Peonies That Fit," 79
- Reid, Buford, article by, 149
- Ridsdale, P. S., article by, 79
- Road, Forest Hill, 123*
- Robinson, Ellie M., article by, 134*
- Rock Garden, Fall Color in the, 118
- Rock Gardens for the Connoisseur, 45
- Rockery, 46*
- Rockwell, F. F., articles by, 11*, 83*, 130*; illustrations by, 84, 130
- Rolfe, H. Parker, photograph by, 199
- Room Plants; When They Become Leggy, 118*
- Root Crops, packing, 95*
- Root-vegetables in a trench, 83*
- Roots, storing, 163*
- Roots, Wintering the Tender Flower, 162*
- Rose chafers, 96
- Rose Garden for Portland, Ore., 24
- Rose, Putting the, on the Map, 166
- Rose, The Hardy Yellow, 117
- Rosemary, Bog, 16
- Rowland, E. H., articles by, 184, 186
- Rutledge, A., articles by, 80, 120
- S. F. H., articles by, 7, 80*, 149
- S. L. B., article and photograph by, 41
- Sage, pale blue, 53*
- Salvia, 54
- Salvia azurea, 53*
- San José Scale, 56
- Sand Lily, The, 184*
- Sand Myrtle, 16*
- Sargent, C. S., article by, 122*
- Saving Labor in Land Cultivation, 21*
- Schoyer, B. Preston, article by, 118
- Scientific Industrial Management, Methods of, as Applied to the Vegetable Garden, 191*
- Scratcher, A Broomstick, 40*
- Seed Order and the Tangle of Varieties, Your, 197*
- September cover, Training the Recruit, by E. D. Drake
- Seeds, New Buddleia or Summer Lilac from, 117
- September, Plant Peonies in, 49*
- Sheep Laurel, 16, 91*
- Show, New York Spring, 138
- Shrubs Attractive to Birds, 154
- Shrubs, Two Fruiting, for the Home Garden, 79*
- Sinclair, G. H., photograph by, 154
- Skinner, C.D., article and photo by, 149
- Slugs on pear foliage, 10
- Small House, Some Good Things for the, 108*, 174*
- Smallest Quantity; Making it reach the farthest, 191*
- Snapdragons, 118
- Sneezeworts, 53*
- Society, American Rose, 166
- Society, American Sweet Pea, 166
- Societies, Leaders of the, 81*
- Soil Binders, Irises as, 117
- Soil ingredients, mixing, 131*
- Soil, Making Next Year's Garden, Better, 86
- Solving the Fuel Problem, 196
- Some Bulbs Assured, 104
- Some Good Things for the Small House, 108, 174*
- South, Planting for the, 110, 136, 168, 204
- Sowing, Present, For Extra Early Crops, 95
- Spanish and German Iris From Seed, 5
- Speck, Private A., article by, 79
- Spice Sweet and Sweet Bough, 120
- Spinach, 10, 57, 198
- Spindle Bush, 16
- Spray Engineering Co., photos by, 14
- Spray machine, 14*
- Spraying Kills Young Squash Bugs, 28
- Spring, F., article and photo by, 201, 202
- Spring Planting for Summer Bloom, 201*
- Sprinkler, 13*
- Squash, 198
- Squash Bugs, Spraying Kills Young, 28
- Stake, 41*
- Stake, A Neat, 128
- Standpipes, 13*
- Steed, T. J., photograph by, 157
- Stoddard, G. O., photograph by, 125
- Storage, 83*
- Storage of Garden Products for the Winter, 83*
- Storage of Potatoes, 168
- Storing beets, 85*
- Storing carrots, 85*
- Storing celery, 83*
- Storing parsnips, 85*
- Storing, potatoes before, 83*
- Storing roots, 163*
- Storing Tender Flower-Roots, 162*
- Strawberry Glen Mary, 20*
- Strawberry Planting, Late, 41
- Strawberry Specialist's Intensive "Systems," 20*
- Streptosolen Jamesoni as a Standard, 150*
- String Beans, 98
- Sturtevant, R. S., article by, 118
- Summer Bloom, Spring Planting for, 201*
- Summer Lilac (New Buddleia) from Seeds, 117
- Sundew, 90*
- Sundial, An Original, 118*
- Sweet Bough, Spice Sweet and, 120
- Sweet Corn, and "Sweet" Corn, 185
- Sweet Peas, Fall Sown, 80
- Sweet Peas Sown in the Fall for Early Bloom, 47*
- Systems of a Strawberry Specialist, Intensive, 20*
- Table, vegetable planting, 194
- Tabor, Grace, article and planting plans by, 191, 192, 193
- Taylor, Norman, article and photographs by, 80, 90
- Tealdi, Aubrey, article by, 81
- Thalictrum dipterocarpum, 54
- Thatcher, A. E., article and photograph by, 119
- Thomas, F. M., articles by, 17*, 39, 53*
- Tomatoes, 96*, 198*, 199*
- Tomlinson, B. N., articles by, 5, 39
- Tools to use during January, 189*
- Topeka Hollyhock Chain, 149*
- Topworked Apples, 184
- Totty, Charles H., Portrait, 81
- Touch of Blue in the Fall Garden, 151
- Tractors, 21*
- Trailing Arbutus, 16
- Training the Recruit, September cover, by E. D. Drake
- Transplanting, Out of Season, 6
- Tree Peony, A Yellow, 40*
- Tree Peony, New Hybrid, 40*
- Trees attractive to birds, 154
- Trench, outdoor, 43*
- Trench, root-vegetables in a, 83*
- Tresses, Ladies', 90*
- Troth, H., photographs by, 133, 197
- Trumbull, E. E., article by, 117
- Tuberose, 163*
- Tubers, Dahlia, 162*
- Turnips, 10, 57, 199
- Tulips and Daffodils Planted Late, 149
- Tulips in the Window Box, 41*
- Two Fruiting Shrubs for the Home Garden, 79*
- Tyler, Jas. E., photograph by, 197
- Under Glass Culture, Vegetables for, 157*
- Under Glass, Getting the Garden, 130*
- Unheated Greenhouse, 120*
- Unheated Greenhouses, Hardy Primulas for, 150*
- Uni-Ford Tractor, photograph by, 22
- United States Dept. of Agriculture, photographs by, 88
- Using Fresh Vegetables Wisely, 126
- Using Fruits and Vegetables Wisely, 87*
- VanGelder, H. E., article and photograph by, 80
- Vaccinium vitisidæa, 16
- Valentine, F. H., articles by, 20*, 184; photograph by, 20
- Vegetable combinations, practical, 132
- Vegetable Gardening, High Pressure, 100
- Vegetable Garden, Methods of Scientific Management Applied to the, 191*
- Vegetable Garden, plans for, 200, 201
- Vegetable planting table, 194
- Vegetable plot, 200*
- Vegetables and Fruits; Using them wisely, 87*
- Vegetables for Under Glass Culture, 157*
- Vegetables, Fresh; Using them wisely, 126
- Vegetables Planted in Autumn, 106
- Vegetables, root, in a trench, 83*
- Vegetables, why they spoil, 83
- Verrees, J. P., August, October, November, January cover designs by, Verrees, J. P., photograph by, 11
- Viburnum opulus, 153*
- Vilmorin, The Late M., 64
- Vincent, Jr., Richard, Portrait, 81
- Vine, Pepper, 184
- Vines, 52*
- Vrooman, Carl, Authorized Statement by, 9
- W. M., article by, 81
- W. N. C., articles by, 118, 119, 150*
- Wait, Walter J., article by, 128
- Walter, F. A., photographs by, 49
- War Garden; Make it Attractive, 200*
- "War Garden" Effort, One Successful, 91*
- War Gardens, Cashing-In the, 11*
- War Gardens; What they really mean, 93*
- Water to Increase Garden Efficiency, 13*
- We Love Our Cottontails, 6
- We Want Daylight Saving, 183
- West., Geo. P., photographs by, 21
- What the Florists Will Offer in Holiday Plants, 133*
- When a Teaspoon Solves Difficulties, 7
- When Room Plants Become Leggy, 118*
- Where to Obtain Rare Plants, 149
- White, Chas. E., photograph by, 155
- White grubs, 56
- Whiting, W. J., article by, 7
- Who Succeeds with Heather? 5
- Why Buddleias Die, 119
- Why Does the Beetle Attack this Aster? 117
- Why So Few Currants? 5
- Wilder, Louise Beebe, article by, 120
- Willard, S. F., article by, 151
- Wilson, E. V., article by, 162*
- Window Box, Tulips in the, 41*
- Winter, At the Turn of, 165*
- Winter Begonia, 159
- Winter Pastime, A Gardener's, 120
- Winter preparation, 81
- Winter protection, 135*
- Wintering Canterbury Bells and Foxgloves, 119
- Wintering Celery, New Method of, 80
- Wintering Herbaceous Plants, 39
- Wintering Tender Flower Roots, 162*
- Wire worms, 56
- Wolf, Wm. H., article by, 48
- Woman's Farm and Garden Assn., 166
- Women Horticulturists' Meeting at Chicago, 104
- Wood, Jos. L., article by, 5
- Woodpecker, 155*, 167
- Yellow Fringed Orchid, 91*
- Yellow Tree Peony, 40*
- Your Seed Order and the Tangle of Varieties, 197*
- Zenobia, 16*

THE

GARDEN

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MAGAZINE

AMONG OUR GARDEN NEIGHBORS



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FEBRUARY 1917

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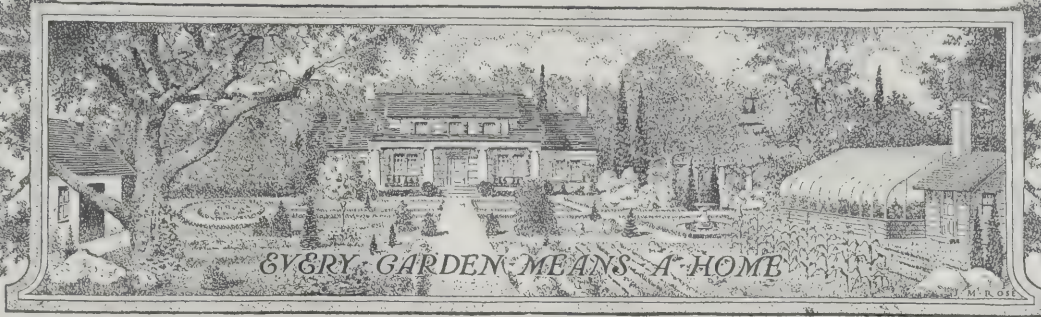
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The Garden Magazine

VOLUME XXV

FEBRUARY, 1917

NUMBER 1



Among Our Garden Neighbors

What I Like.—Permit me to express my dislike of professionalism in *THE GARDEN MAGAZINE*—or anywhere else. We want a few Wilsons, and perhaps a few others; but after that such pages as 177-8 are worth acres of landscape plots, garden lists, and the like. We glance at them and smile at their assurance, then look for something else. Who that loves the soil would fail to read the two pages I mention? I recall a garden seed list of a year or two ago in which the "specialist" runs so entirely to peas that he spends several dollars for seed to use in a small garden! So please give us the bits of experience anyhow, whether you include the routine spreads or not. I have had every number of *THE GARDEN MAGAZINE*, except the first one, and I hope it will not die of professionalism, as *Garden and Forest* did. That died of orchids.—*John W. Chamberlin, New York.*

A Little Bit of Experience.—In reference to that popular Rambler Rose Dorothy Perkins I have made it a practice to lay down branches in the early part of June each year, by placing them on the ground and putting earth over them, letting them remain until the following spring, when they are rooted well, leaving the branches attached to the parent plant until removed. My idea is this, you get larger bushes and have at the same time an acclimated plant. For example, two years ago I planted two, so treated, which were 8 feet long and they bloomed profusely that season. In planting them I made a hole about 2 feet deep and put in 8 inches of well rotted cow manure and it would astonish one how well they responded. I write this for the benefit of whom it may concern.—*Samuel O. Hedges, Bridgehampton, N. Y.*

Alpine Primrose.—In Sweden we had a wild Primrose growing mostly in lowlands, peat-fields, or at the side of ditches. Shape of plant similar to *Bellis perennis*, but grayish green, flower stem 6-7 inches, a cluster of flowers of from 7 or 8 to 12 or 15 or more on top of stem; color, shape and size of individual flower like *Primula Forbesi*. Can any one tell me the name? I have tried for years to find out from greenhouse men, but so far failed. Also, where can I get *Chorizema varium*? I have looked in seven big catalogues but cannot find it.—*James J. Themanson, Monmouth, Ill.*

[We think the plant you have in mind is *Primula farinosa*, a very variable species which is widely distributed throughout the alpine region. Not only in Europe, but in America at least, the form of *Primula farinosa*, found in North America, is so much like the European plant that it is very hard to separate the two. The American form is sometimes known as *P. mystassinica*, and the Rocky Mountain form has been called *Primula americana*. The size of the flower is very variable, and the height of the flower stalk will vary from an inch up to nearly a foot. The flowers are also variable in color, but usually in shades of pale lilac.—*Ed.*]

All Parties Are Fed.—I am delighted with *THE GARDEN MAGAZINE* and read every word, including the advertisements, from cover to cover. It is the only practical magazine I know of for gardeners that isn't mixed up with other matters. I do not agree with the party in the December number who complained of its being too professional, for, as a matter of fact, we have articles from amateurs as well, and I get gardening experience from both sides. Professionals keep in touch with new methods and new plants; so we amateurs can follow modestly in their train and experiment occasionally, and not remain in the old beaten track. I think I am the first person, professional or amateur, in this section of the country to experiment with witloof chicory, and I must give my experience some day.—*J. M. Patterson, Richmond, Va.*

Woodruff Under Shade of Trees.—There is a wonderful, big Sugar Maple on my front lawn, under which nothing would grow—Periwinkle will grow beautifully under the Elms and "shady lawn grass" will grow under many of the trees, but under the Maples with their branches almost touching the ground, there have always been ugly bare spots, to which one of my dearest friends gleefully calls attention, as she says; "Nothing is so comforting as the faults of one's friends." It has not been my fault for I've tried many, many things without success. However, I've at last solved the problem! Several years ago I got a package of Sweet Woodruff seed—called in the catalogues *Asperula odorata*—which came up and spread in a marvelous way. A year ago I took these

young plants as they came up in the spring (for it is perennial), and planted them thickly, all around the tree, making a perfect circle, 14 feet in diameter, and it has withstood shade and drought and frost and has kept the most perfect green; and in May is a mass of white bloom. The German housewives dry the blossoms to use among their linens, but it is not as sweet as Lavender, and smells like new mown hay. [It is also used for "May-wine."—*Ed.*]

The leaf comes in little whorls, stands up straight, looks so neat—and doesn't creep like a vine—and is always a lovely, rich, dark green. It is the most successful plant for the purpose that one could have. It is easily grown and needs no care, excepting that in the spring I trimmed it in a perfect circle again. The leaf is pretty to put in with small cut flowers such as pansies, etc. Start the seeds in a cold frame or in a separate bed, and get the plants well developed before being transplanted under the tree.—*Camille Hart Irvine, Penna.*

Spray Manufacturers Take Notice.—In the December issue, page 177, is a communication from Laura J. Paxton, which is of value to the ordinary amateur, if correct. Most of the instructions accompanying insecticides refer to large quantities, generally forty gallons. The owners of small gardens do not want that quantity at a time, and it is puzzling to them to endeavor to figure out the proportions on smaller lots. In fact I have known parties to forego the use of scale washes because as they had but one or two shrubs needing it they did not want to make up forty gallons, and were afraid to attempt figuring out the proportions for a gallon as they might get it too strong and injure their plants. I think it would be a good thing to get some mathematician to figure out the proper proportions of the leading insecticides for, say, a gallon of prepared mixture.—*W. C. Egan, Ill.*

[The reader interested in reducing the standard spraying formula to common day needs, can turn to *THE GARDEN MAGAZINE* for June 1910 where there is an illustrated article "Spray Formulas in Terms of Kitchen Utensils," by Prof. W. C. O'Kane, Entomologist, New Hampshire Experiment Station. The standard formulas, with reduction to table-spoon quantities for one or two gallons, are given in each case.—*Ed.*]

Who's Got Brinkle's Orange Raspberry?—It seems to have "gone out." I have not seen any since my late boyhood. Does any one know where it is now being grown. Perhaps youth placed a halo upon it, but as I remember it was a higher flavored berry than any other yellow variety I have tested. Golden Queen, the only prominent yellow variety offered by nurserymen, in my estimation is inferior to Brinkle's Orange. Is any reader growing both of these? If so, let's hear from him.—*D. J. H., Ontario.*

The Dahlia Again.—Many times have I read in your magazine about the success with this plant and the ease of culture, while others seemed to experience difficulty. The Cactus Dahlia has been a favorite of mine for seven years now and I have tried a number of varieties, which have always given good results, except last year, and I have never before experienced a greater disappointment with any plant. I know of three other people in this vicinity who are growing Dahlias and they too had the same experience this year; and others, from 100 to 400 miles from here, had no better success. Some of the plants were dwarfed, the buds would rot before opening, and nearly

all the blooms were to some extent blighted, or were imperfect and worthless. In late fall, just when the frost nipped them, the flowers were becoming better. I believe that the excessive wet and cold of the early part of the season was the cause. Our growing season is short and setbacks cannot easily be overcome.—*Carl Zapffe, Minnesota.*

More About the Matilija Poppy.—It was interesting to read the note on this plant in the January issue. A number of years since there was considerable discussion in the horticultural press, about the growing of the Matilija Poppy, Romneya Coulteri, a native of California found in scattered regions from Santa Barbara to Southern Mexico. It is said to be abundant near Riverside.

At one time we tried to raise it from seed at Rochester, N. Y., but the young plants were "miffy" and our attempts were failures. Nine years ago we noticed strong roots offered for sale in a French catalogue. We bought a few plants, and planted them in a very porous, leachy, sandy soil, on a slope facing the south, in one of our city parks, and we confess we had little hope of their success, when hearing of so many failures. Much to our surprise, some months afterward we noticed them growing vigorously, and during the summer of 1909 the plants produced a number of flowers, and they have flowered freely every season since. We have always mulched the crowns of the plants in the winter time with leaves to exclude the frost. The plants have spread rampantly, by stolons, and they cover an area at the present time of about 150 square feet.

It throws up strong stout stems four to six feet in height, which incline at a slight angle, and at the approach of winter the stems are partly killed. They are then cut down before mulching, and we treat it much in the same way as an ordinary herbaceous perennial.

The leaves are bluish green, or glaucous, and are lobed into four or five segments, on stalks about one inch in length. The first flower comes from a terminal bud, and three to five flowers are produced on lateral stalks four to seven inches long. The satiny white flowers are four to six inches in diameter, and display in the centre a roundish mass of golden yellow stamens around the ovary. It is usually in bloom with us from the first of July until the first of August, and an individual flower lasts about three days.

Our experience here with this handsome flowering plant would seem to justify the following conclusions: Procure strong roots (the roots consist of a few

thick prongs); plant in spring in porous, warm, sandy loam on a southern exposure; be sure that no water or stagnant moisture rests on the crowns in the winter months; and protect from frost with a generous mulching of leaves.—*John Dunbar, Rochester, N. Y.*

The Beautiful Pepper Vine.—A beautiful native American vine that has not yet come into its own, if I may judge from the fact that in the fifteen years in which I have been an amateur gardener I have not seen a single mention of it in any gardening magazine and have found it listed in only one catalogue out of the dozens on my desk, is the Pepper Vine—*Ampelopsis arborea*, described by Linnaeus in 1753 as *Vitis arborea* and called by some botanists *Vitis bipinnata*, *Cissus arborea*, or *Cissus stans*. Perhaps it has been forgotten among the host of newer plants. I have never seen it growing anywhere except in the place where I got my first root and in the gardens of a few of my friends to whom I have introduced it. I can not understand why it has been overlooked and so am going to set forth what I have learned of it in the hope that its virtues may be tested by some garden enthusiast who has not yet found them out. And if one or two of the more laggard nurserymen who, as Mr. McFarland says in a recent number of THE GARDEN MAGAZINE, "ought to lead us but instead slowly follow" are moved by these notes to accumulate a stock and offer it to their customers, I shall feel that I have transferred to these pages some of the spell that this vine has exerted over me.

The pepper vine does not cling, like the Boston Ivy and Virginia Creeper, but climbs by tendrils on any light support, such as a trellis or wire fence. It is a fairly rapid grower—not a speed-law breaker like the Kudzu, nor yet so unconsciously deliberate as the Evonymus. If left to itself it develops a somewhat woody stem (whence probably the specific name *arborea*) and tends to become bare at the bottom. To prevent the bareness it should be cut back every year or two, and so treated it will grow at just the right rate for the average garden of not unlimited space.

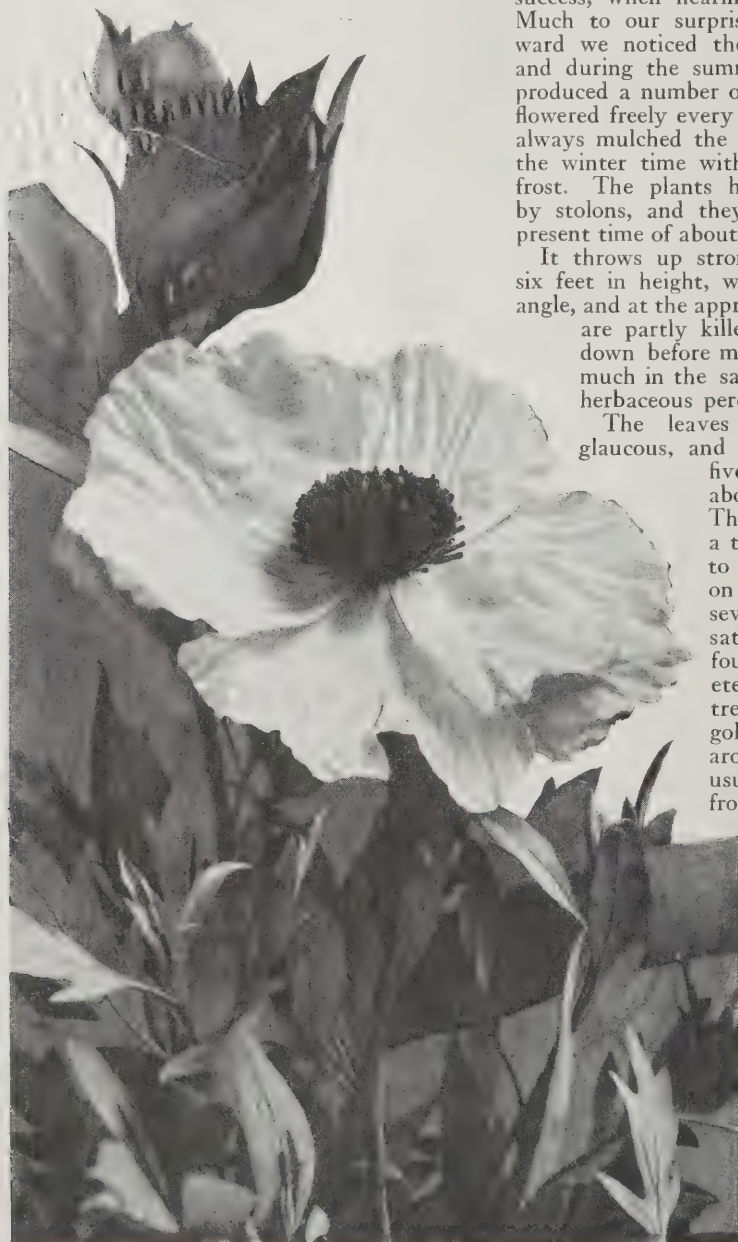
Its beauty lies wholly in the attractive foliage; for the flowers are minute, scarce, and of interest only to the botanist. But the gardener who can appreciate grace of form and poise and pleasing coloring will find in the leaves and stems ample food for his admiration. The photograph of a characteristic spray shows the shape of the leaves, which average an inch from base to tip. The young foliage is usually bronze green—the peculiarly handsome hue shown by the copper beech in mid-season—and as it matures it changes to a rich, slightly bluish green. The leaves are what the botanist calls nearly glabrous, which means in plain talk smooth, but not shiny.

The young stems are no less attractive, being of an indescribable pinkish-maroon color that blends perfectly with the bronzy tone of the leaves.

The greenish pinhead flowers, which grow in clusters like those of the tricolor ivy, are rarely followed by small berries that are at first green, then cerise, and finally the dark maroon of the Tartarian cherry.

The roots of the pepper vine travel laterally and send up shoots here and there, which can be dug up and set out, and a single vine well started will furnish plenty of young plants.

The vine grows well in either sun or shade, and although Britton and Brown, in their



The California Tree Poppy, *Romneya Coulteri* has a strong fascination for the Eastern cultivator. It is well worth growing for its glorious flowers



The beautiful foliage of the Pepper Vine would seem to justify the wider appreciation of this native plant for garden use.

"Illustrated Flora," say that it is found in rich, moist soil, it seems to be content with any soil whatever. A root cutting about a foot long that I had thrown out on a pile of yellow clay, which was neither rich nor moist, in some way got its ends covered and forthwith sent up a shoot that has continued to grow vigorously.

"Gray's Botany" gives the range of the pepper vine as "Virginia to Missouri and southward," and Britton and Brown say substantially the same thing. These statements and the fact that the only nursery I know that offers it is in North Carolina might suggest that it is a Southern vine, not hardy in the North. But it is perfectly hardy in southwestern Ohio and in Washington, D. C., having been unhurt by the severe winter a few years ago that killed down to the ground most of the California Privet in Washington. That seems to indicate that it will live wherever the California Privet will survive the winter, at least. I wish some venturesome gardener north of Mason & Dixon's line would try it and report results.—*Bernard H. Lane, Washington, D. C.*

Gooseberries for Table Use.—Perhaps none but an Englishman or some one who has recently come over from the other side or one who has been over there would realize what this means. Think of a plate of Gooseberries on the table to be eaten as one would eat Reine Claude plums or peaches and the same to be as highly prized as if one had a plate of nectarines or was cutting up a melon which had been grown under glass. There are varieties of gooseberries which could be grown so that they reached the size of two inches in length. They can be grown here, such varieties as Industry, Whitesmith, Chautauqua, Poorman and Columbus, and undoubtedly as soon as there is the slightest indication that the public will appreciate them other varieties will appear, so that there will be nothing superior anywhere than those grown in America.

The Lancashire miner makes a great hobby of his gooseberry bed. Considerable pride is taken in being the one to win the first prize at the gooseberry show. The gooseberry bushes which produce these fruits are usually grown as small standard trees with a central trunk and perhaps one and in some cases two layers of branches. A plant may have 4 or 5 feet spread, it is carefully pruned so that the fruit is not too thick and it is enclosed in a frame which is usually made with 1 inch by ½ inch lath. This frame is probably 2 feet tall and a little wider than the plants. It is equipped with side curtains and a top, the object of all this being to keep the rain off the ripening gooseberries when they are approaching maturity, for should the rain strike a fruit which is just ripe it is quite apt to burst and

be spoiled for exhibition. The story is told of a Lancashire miner who did not have his gooseberry bed covered the night before the show. He was giving the fruits the last 24 hours on the bushes, and during the night he heard the first patter of the rain on the windows and seizing the bed clothes he hurried down-stairs to cover up the plants with them until he had time to put the curtains on the frames. Enthusiasm will carry one anywhere.

These fine fruits can be grown here. One may need some shade to protect the ripening fruits from our hot sun. The shades are laid off during dull days and during fine weather, for during certain seasons like the past, excellent fruits may be ripened without any protection, but sun-scald is generally a very serious obstacle to the ripening of the fruit on the bush.

The varieties to plant are Industry or Whitesmith, the former being a red and the other a yellowish white gooseberry when ripe. Columbus and Chautauqua are identical and are yellowish white when ripe, and Poorman which is of American origin and promises to be more resistant to mildew than Industry or Whitesmith is worthy of trial.

The bushes need dormant spraying with Lime Sulphur 1 to 8 and then three or four sprayings to protect the foliage from the downy mildew, the material used being Lime Sulphur 1 to 40, the spraying should be given as soon as the plant is out of bloom and at intervals of 10 days to 2 weeks thereafter. Arsenate of Lead, 2 pounds to 40 gallons, should be added to the first of these sprayings, to keep off the green worms.

Clean cultivation should be given, the beds should be well manured and the cultivation should be very shallow, the roots being too near the surface to warrant deep digging. If the plant is excessively loaded it should be thinned in order to get large sized fruit. The green gooseberries which are taken off may be bottled for winter use and the ripe fruit will be an addition to the table for those who appreciate it.—*Samuel Fraser, Genesee, N. Y.*

Personal Experiment is a Delight.—Sometimes I wonder if these highbrow garden experts like your globe-trotting friend, Mr. E. H. Wilson, have any real sporting horticultural blood. For instance, you recently published a long dissertation on Rhododendrons, and told how foolish people dug 'em up from the woods. This article almost discouraged me, because I had just bought a carload of these hacked-up plants and Mr. Wilson made me believe that they would all die.

They didn't die; practically none, certainly not 1 per cent. They have been hand fed, I admit; their feet never grew cold; leaves and mulch always comforted them, and they splendidly withstood (with the help of a weekly bucket of water for each plant) a fierce drought. "Safety first" may be a good axiom, but "Take a chance" is not so bad. Fellow Gardeners, don't let people who write these learned articles in THE GARDEN MAGAZINE frighten you.—*Effendi, Long Island.*

[Our recollection is that Mr. Wilson observed that digging up native Rhododendrons by the carload would not solve the question of hardy hybrids.—*Ed.*]

Evodia Danielii.—Until Mr. Wilson's explorations in Western China no hardy or relatively hardy Evodias were known or cultivated in eastern North America. A number of species from the Old World tropics were

known as warm-house evergreens. We have several species growing here in the parks, but the only one that has flowered with us so far is *Evodia Danielii*. It appears to be the hardiest and has flowered annually for the past three to four years.

The Evodias belong to the rutaceae family, to which the Citrus belongs, and the foliage of nearly all of its members is characterized by a strong, pungent, aromatic odor, of which the writer is rather fond, but it may be objectionable to some people, and this feature is markedly noticeable in the Evodias.

Evodia Danielii has compound leaves ten to sixteen inches long, usually composed of seven to eleven sessile leaflets, ovate, acute at the apex, rounded at the base, deep green above, pale green below, with a few scattered hairs on both sides. The flowers are produced in terminal, compound, corymbose clusters from August 7th to 15th. The blossoms are white, and the five yellow anthers stand out somewhat prominently. The flower clusters can hardly be said to be conspicuous, but they are very interesting.

The individual shown in the picture is, at the present time, twelve feet tall; the trunk or stem is gray and quite smooth. *Evodia Danielii* is an important and interesting addition to our gardens and parks.—*John Dunbar, Rochester, N. Y.*

A New White Alum-Root (*Heuchera*).—

One of the prettiest perennials introduced within the past three years is *Heuchera convallaria*, the "Lily-of-the-Valley" *Heuchera*. It comes in white, *H. convallaria nivea*; and flesh pink, *H. c. carnea*, and may best be described as a glorification of the type. I have found it a much stronger grower than the old *Heuchera sanguinea* and a vast improvement over even the newer hybrids. The plants themselves are exceedingly handsome, forming large tufts of ivy-like foliage, the individual leaves fully twice the size of *sanguinea* leaves and of a richer shade of green. But it is in the profusion of bloom and the height and size of the flowering sprays that the great value and beauty of this newcomer lie. The sprays ordinarily attain a height of 28 to 32 inches and a diameter of



A welcome addition to our summer flowering trees is *Evodia Danielii* which blooms in August at Rochester, N. Y.

five to six inches at the base. The stems are strong, but graceful. The bells are more nearly cup-shaped than those of the older type, so that a plant in flower, except for the distinct character of the foliage, does strikingly resemble a gigantic Lily-of-the-Valley, thereby justifying its name. On one of my plants I counted last spring thirty-four flowering sprays at one time. With me, the white form proves the better bloomer, as well as the stronger grower. As a foreground planting for Delphinium Barlowi, or the improved D. formosum, nothing is more satisfactory than this new Heuchera. As it comes into bloom early and retains its flowers into July, an exceedingly pretty effect may be obtained by interplanting the Delphiniums above mentioned with Siberian Irises, Polemoniums, and blue and white Campanulas, preferably of the "peach leaf" varieties. The feathery beauty of the Heuchera sprays almost completely hide the basal foliage of the background plants, imparting an indescribable grace and lightness to the bed. I count this arrangement one of my happiest garden effects.

These Heucheras may be easily raised from seed, which germinates readily. From two small foreign packets—and they were very small—I obtained forty plants. The seedlings appear stronger than H. sanguinea seedlings and make more rapid growth. They do not, however, bloom from seed until the second year, and it is not until their third spring that their full effect is produced. In this part of New England they seem entirely hardy, the only plants that I have lost being those removed in the night, root and branch, along with some valuable "type" and named Larkspurs. But such losses are not, of course, attributable to climatic conditions.—E. Her-
rick, Springfield, Mass.

Another Large Silver Bell.—I noticed in the December issue the note on the Silver-bell tree which Mr. L. C. Buss of New Jersey has in his garden, and which measures 5 feet in circumference, 4 feet from the ground base, and has a height of about 55 feet. Perhaps it will be of interest to Mr. Buss to know that in the forests of the Blue Ridge Mountains in North Carolina, near my estate at Highlands, at an elevation of 4,000 feet, I measured last spring an Halesia carolina monticola (which is the arborescent form of the Halesia carolina as now recognized by the Arnold Arboretum) which measured 7 feet 5 inches in circumference, 4 feet from the ground, and had a height of approximately 80 feet. This Halesia is cut as a timber tree in some sections of these mountains. If Mr. Buss would like to see a photograph of the tree, I have one which I would be glad to show him.—H. H. Richardson, Brookline, Massachusetts.

To Hasten Young Peach Trees.—I have for eight years raised peach trees for my garden from pits and grown them unbudded. I was forced to this unorthodox course because the "clearwinged wasp-like fly," which lays peach-border-eggs days, nights and Sundays in this neighborhood, has an epicure's delight in the sappy thickened bark of budded trees at the point of union—I have raised some good fruits, first and last, when all the budded trees of the vicinity died.

Generally, the fourth summer after germination sees two or three fruits on a seedling peach tree and shows whether the tree is a good one or not. Some trees bear their third summer if never transplanted. Crawford's in particular give a high average tree from seed and bear young. I have a row raised from pits of the best fruits of a basket of

Georgia early peaches which are tender and freeze back badly. Two of the same lot in sheltered situations are large young trees and full of fruit buds last spring.

The trees in favored positions I had to cut back because in the rainy weather we had in 1911, they bent over a path and showered passers by unduly. The side of those trees toward the path in 1912 was full of fruit buds and the unclipped side had few or none.

I had no more than noticed this oddity when I received a Penna. State Bulletin on orchard work in which Prof. H. G. Surface, the State Entomologist, well known as a practical authority on fruit growing, announces as a certainty that young stone fruits can be put into bearing young by end-pruning of twigs in August and September.—E. S. Johnson, Pennsylvania.

The Sweet Bough Apple.—When I was a little boy my mother used to tell me not to eat any green apples when I went to visit my little playmates. She said sour and green apples would make me sick. On at least one occasion I was disobedient to the extent that when I returned Mother after poking my abdomen with her forefinger exclaimed, "Oh! tight as a drum!" I don't remember whether or not I was spanked but I do remember that I have not yet felt the ill effects of those Sweet Bough apples. It is my belief that if more of this old time favorite apple were planted in home orchards anxious mothers would find it a boon in the way I have suggested. The variety is one of the most luscious, delicious "scrumptious," "splushious" of all our early apples. No sweet variety with which I am acquainted compares with it. After you have eaten one in its prime condition you will not wonder at my mother's exclamation!—M. G. Kains, New York.

THE MONTH'S REMINDER

GETTING SEEDS STARTED FOR AN EARLY GARDEN THIS YEAR

THOUGH the outdoors may look still far from inviting it is in reality only a few days before all the outside work will be coming along with a rush. March will be here before you know it. Wherever there are fruits and shrubs there should be work enough to keep the gardener busy for every hour of pleasant weather he can get out-doors between now and digging time. If you still have planning to do,—and there is no danger of doing it too carefully and thoroughly—save it for evenings and stormy days.

Make a list of the things to be done, otherwise you are likely to find yourself using as much time in looking about for work and trying to decide what to do next, when you do get a chance, as in actually doing the work.

DO SPRING CLEANING NOW

AGENERAL shakeup of the greenhouse plants can be undertaken now, taking stock, and discarding poor plants. The real rush season is still a few weeks away, but it is high time to get everything in readiness. Make all the spare room you can for transplanting, repotting and potting up. Don't

bother with poor looking weak plants. They may be of some value, but probably not as much as the other things you can grow in the space they occupy.

Clean out the space in which you intend to start your cuttings and seedlings. It is best to remove every bit of soil, sand and anything moveable. Then give a thorough spraying with extra strong bordeaux mixture and nicotine sulphate combined, and after that has dried, white-wash the wood before putting in the new soil and sand. These precautions will take very little time if you once get at them in earnest, and may save dozens of seedlings. It will pay well to sterilize the soil to be used in starting seeds. Killing the weed seeds alone will pay for the trouble. If you need but a small amount of soil it may be easily "baked" on the top of the furnace or heater when you have a good hot fire going, or turn a jet of live steam into a covered box half full of loose soil.

SOIL FOR SEEDLINGS

MIX up now the soil for your "flats" and pots for spring work. Sift it—add a little bone flour—and if it is dry, water it

thoroughly, and put it away in a barrel or a bin. It will then be in ideal condition when you are ready to use it, giving quicker results than soil prepared at the time of using.

Get ready "flats" and pots. Saw up all the flats you will want—and then some more for one always needs more than at first estimated. Old pots should be allowed to soak a day or two in water; and then scrubbed inside and out with sand and an old stiff brush.

Before the end of this month finish all needed repairs on old sash, and the glazing and painting of new ones which may be wanted for this spring. This annual job is a messy one at the best. Get at it and finish it up as soon as possible. If you have not used it before, this spring try some of the "liquid putty" for repairing—easier to put on and stays plastic under the hard skin forming on the surface.

HAVE YOU ENOUGH FRAMES?

THREE out of five gardeners struggle along with fewer sash than they could advantageously use. With the new style double glazed sash you get many of the advantages of a hotbed without the trouble and

the expense. Plants can be put out—or vegetables sown or planted in them for extra early results some two weeks earlier than they can under an ordinary single glass sash, and they will require a great deal less time:—no mats and shutters to be put on at night or on stormy days, and the plants get all the sunshine there is and show their appreciation of it in extra rapid development.

All frames which have not been in use during the winter should have the sash put on now so that the ground can be getting warmed. If the soil has been protected by a mulch, remove it before putting on the sash, as leaving it would keep the soil cold.

Begin work on the hotbeds by the end of the month, so that they will be ready for the first planting of seed. As soon as possible get the manure for the heating material as it must be allowed to heat with repeated turnings, for several days before it is placed in the frames. Get short, comparatively fresh manure from the horse stable. As soon as it is decomposing through and through put it into the frame, a six or eight inch layer at a time—thoroughly treading down, to a depth of 18 inches or so, according to conditions—more in very cold climates or early in the month. Cover this with from four to six inches of soil and *do not plant anything* until a thermometer in the frame shows that the heat has decreased to eighty-five or eighty degrees.

MEETING AN EMERGENCY

EVEN if you have no equipment, and want a hotbed this spring, you can have it. Order at once a frame and sash. Then get the manure, and as soon as it is actively heating, pack it in a long low pile, two to three feet deep and from eight to nine feet wide, and of sufficient length to take the frame, which on arrival is placed in position and banked up on the outside with manure or with leaves. Even frozen lumps of soil will thaw out very quickly over the hot manure and you can have a large part of your garden several weeks before you would if it was planted outside.

SPARE THE SWITCH AND SPOIL THE TREE

WITH a good pair of pruning shears and a sharp saw, it is a real pleasure rather than a nuisance to prune up the fruit trees, etc. With dull tools, however, it is anything but pleasant.

Look up the December Reminder and other spraying information which you can easily find by referring to the index of your back numbers of the GARDEN MAGAZINE. Do not let this month go by without getting all dormant pruning well under way, if not entirely finished. It will be much harder for you to find time to do it next month.

There will be many afternoons this month, when the thermometer will be comfortably above freezing and the wind is not blowing, when you should get your second application of spray on the trees. With the prepared sprays which one can get now ready to use by simply diluting with water, there is no excuse for not getting this work done.

AIDS TO HURRY-UP

HAVE you tried out yet the many practical accelerators for the outdoor garden which have come into use during the last few years? For instance: paper pots and dirt bands. The former are merely pieces of cheap tough paper of such a shape that when folded over a block and held in place by a single tack, they make very good pots. For start-

ing plants for the vegetable garden, and for many flowers, they are better than clay pots. Their greatest advantage is the fact that they do not dry out quickly, and good results can be had without expert management. Further, they hold a good deal more soil than clay pots of the same size, growing stronger plants; and the plant is less disturbed in the process of transplanting. They are especially valuable for starting melons, lima beans, sweet corn, etc., which cannot be handled in the ordinary way; and also for growing extra strong tomatoes, peppers, and egg plants. If you want to get cabbage—cauliflower, and lettuce earlier than you ever have had them before, get the small size—two or three inch—pots or bands for these plants. A still more ingenious device is a take-down flat with cheap paper partitions or “fillers” which give pot plants without the trouble of handling individual pots. For planting outdoors, either in the vegetable or the flower garden, and for starting hills or

sional failure may be due to poor seeds, but that is by all means the exception and not the rule.

WHY SOME SEEDS FAIL

UNSUITABLE soil is probably the most general cause of failure in starting seeds. Average garden soil is *not* adapted to the starting of seeds without some “altering.”

Here are the most obvious remedies for poor soils:

I. *Humus and Sand:* To each shovelful of garden soil, add from one to two shovelfuls of commercial humus or of cocoanut fibre. If you live where you can obtain leaf-mold, chip-dirt, or tree-punk, any one of these may be used as a substitute for the humus. Leaf mold, the decayed accumulation of years of falling leaves, can be gathered in any woods; chip-dirt you can find where wood has been sawed or kept for a number of years, and the sawdust and small particles have rotted and mixed with the soil; “punk” can be obtained from the decayed stumps of old apple or forest trees.

If the soil is of the clay type, add sufficient sand to “cut” it before mixing with the other materials. The result will be a porous, fluffy, very light material that will hold moisture a long while and will not pack or form a crust through which the developing seedling could not easily push its way.

The soil is usually kept too wet when the seeds are first put in, and not moist enough while they are coming up. The surface of the flat or pan is frequently packed down by repeated waterings until it crusts or cakes.

II. *Drainage:* Put a layer of drainage material in the bottom of each flat or seed pan, then fill in with soil nearly to the top; water thoroughly until the soil will take no more and allow it to stand until the surface has had a chance to dry out enough so as not to be sticky when you plant. After planting, cover each flat or pan with a piece of glass which does not fit on tightly. This actually makes a miniature greenhouse, keeping the surface of the soil and the air just above it moist, while admitting air. As soon as the surface shows the first sign of drying off after planting, water again with a syringe or a very fine spray. *If the soil is properly prepared most seeds will have germinated before another watering will have been required.*

III. *Depth of planting.* Don't bury seeds beyond chance of resurrection! For medium sized vegetable and flower seeds, such as cabbage, lettuce, tomatoes, celery, asters, and zinnias about $\frac{1}{4}$ inch; small flower seeds should be merely pressed into the soil and covered with a mere sprinkling of humus or leaf mold, without soil added.

IV. *How warm?* Give plenty of heat until the seedlings are well started—it takes more to get them started than to keep them going! Give the hardier things, such as cabbage, lettuce, beets, Asters, Verbenas, and Snapdragons, fifty to sixty degrees; and the tenderer ones, like tomatoes, egg plants, Heliotrope and Salvias, sixty to seventy degrees. Light is not necessary until after the seeds sprout. You can put them on the pipes under the benches or in any warm corner—but remove to full light as soon as they have sprouted, or you may ruin the whole planting by a day's neglect. The more light you can give, and the nearer you can get them to the glass for the few weeks after sprouting, until they are big enough to transplant, the better. Also give plenty of water and plenty of fresh air.

DO THIS MONTH

Send your orders as soon as possible.
Start early vegetable seeds.
Start flower seeds for fall and winter plants.
Start cuttings for spring plants.
Make flats and seed boxes.
Clean old pots and order new ones.
Have a general cleaning of the greenhouse.
Continue dormant or winter pruning.
Continue winter spraying.
Go over stored vegetables and fruits.
Go over roots and dormant bulbs.
Order new frames and sash that may be needed.
Make up the hotbeds, or get everything in readiness for making them early next month.

PLANT THIS MONTH

Vegetables Inside; for forcing from seed, tomatoes, cucumbers, melons, cauliflower.
To transplant later: beans, carrots, radish, spinach, where they are to mature.
From roots: asparagus, rhubarb, sea kale, and French endive, or Witloof chicory.
In frames: lettuce, beets, cauliflower, carrots, with radishes interplanted.
Inside for plants: cabbage, lettuce, beets, and spanish onions. Toward the end of the month:—Cauliflower, tomatoes and celery for extra early plants.
Flowers; for next fall and winter: Asparagus, Begonias, Cineraria, Cyclamen, Fuchsias, Gloxinias, Smilax.
For plants for spring setting: Ageratum, Alyssum, Antirrhinum, Begonia (free flowering), Bellis, Canna, Chrysanthemum, Coleus, Dahlia, Shasta Daisy, Dianthus, Forget-me-not, Gladiolus (Colvillei varieties), ornamental Grasses, Heliotrope, Hollyhocks, Lobelia, Moonflower, Nymphaea zanzibarensis, Pansies, Petunia, Phlox, Pyrethrum, Salvia, Verbena, Vinca.
Bulbs; for inside: Gladiolus, Amaryllis, Calla.
Bulbs and Tubers; toward the end of the month: Canna, Dahlia, Calla, Oxalis.

rows of plants, there are various “protectors” and “forcers” which enable one to plant in the open a week or two earlier, and which with care can be used for years, so the cost is very little. Most of these things are not mere “novelties,” but are really practical and helpful. It will cost you but a few cents to make yourself familiar with the different types, and you will find yourself well repaid by trying out a few this spring.

GROWING STRONG PLANTS

SUCCESS in starting plants for setting out later depends largely on getting a quick, strong germination. If conditions are such that the sprouting seedlings have a life and death struggle to get above the soil, it will take them a week or two longer than it should to be ready to transplant, and they never make first class plants. If you have had trouble in starting plants in the past, the chances are that the fault lies with you and not with the seedsman—your own opinion to the contrary notwithstanding. An occa-

Easily Grown Perennials That Flower Quickly From Seed.

G. W. KERR,
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[EDITOR'S NOTE:—This article is presented as a companion to the one on *Annuals From Seed* in the January issue. It is a reliable guide to varieties as well as to kinds, and is prepared by a grower of exceptional experience.]

ALARGE herbaceous border may be made in a single season by starting early in the year with seeds, and there is the further advantage that so many kinds are easily available and will grow on any soil of average quality. There is a subtle something in the perennial border with its irregular lines and differences in height of plants which appeals to everyone. Then there is the constant change in color from week to week throughout the season, from early spring until severe frost, due to the variety of subjects used, so that all formal effects are eliminated. As one kind passes its flowering season, something new is just unfolding its flower buds to add fresh beauty to the border. Of course, it is true some varieties only bloom for a limited period, yet with few exceptions they retain their bright attractive foliage throughout the season, while many of the early summer flowering subjects will bloom again in the fall provided the old flower stems are cut back to the ground level and not allowed to form seed. Another important point is that the plants increase in beauty year by year. Some people entertain a prejudice against raising perennials from seed because of the common belief that the plants will not bloom until the second year. That is true, indeed, to a large degree, but the majority of those named in this article will flower the first season if started early in heat and, indeed, will flower even from outdoor sowings made in the spring. All the same, I advocate sowing in a hotbed or cold-

frame, or even a sunny window, as the seed pans are then more likely to get the necessary care and so ensure a perfect stand of seedlings, besides furnishing earlier bloom. If a heated greenhouse frame or window is available, get the seed sown early in March, but if the frame is not heated, better delay operations until later in March. Though it is more convenient to work in a greenhouse and the seedlings are more easily handled there, yet seeds generally germinate more readily and more evenly in a hotbed, where the air is more moist and therefore more congenial in every way, than when grown in the rather dry atmosphere of a greenhouse. Appended are a few suggested collections selected to serve definite purposes—and any one of which can be purchased (as seed) for a dollar or so. The reader who wishes for more detailed instructions on the raising of the seedlings will find the information elsewhere in this issue of THE GARDEN MAGAZINE.

DWARF GROWING PERENNIALS FOR EDGING OR ROCK WORK

This is a most interesting list, with the exception of *Dianthus plumarius* they are not suitable for cutting, yet in their season the plants become perfect masses of dainty flowers, and, in rock work, form charming pictures. One packet of each should produce plants sufficient for a Rockery of 125 square feet, or plants for edging, 300 to 400 feet of border.

POPULAR NAME	TECHNICAL NAME	DISTANCE APART INCHES	HEIGHT INCHES	FLOWERING SEASON	COLOR
Snow in Summer	<i>Cerastium tomentosum</i>	12	6	May-July	White
Soapwort	<i>Saponaria ocymoides</i>	9	9	May-Aug.	Crimson
Pink	<i>Dianthus plumarius</i>	12	12	June-Aug.	Various
Kenilworth Ivy	<i>Linaria cymbalaria</i>	9	4	June-Oct.	Pink
Tunica	<i>Tunica saxifraga</i>	9	9	June-Nov.	Blush
Gold Dust	<i>Alyssum saxatile</i>	6	9	May	Yellow
Sandwort	<i>Arenaria montana</i>	9	6	May-July	White
Bluebell	<i>Campanula carpatica</i>	9	9	June-Aug.	Blue white
Rockcress	<i>Arabis alpina</i>	9	9	March-May	White
Candytuft	<i>Iberis sempervirens</i>	9	9	March-June	White

PERENNIALS FOR CUTTING AND CONTINUOUS FLOWERING

When thoroughly established and given ordinary care these ten kinds will give flowers for cutting over a long season, the majority blooming from early summer until fall. One packet of seed of each will give sufficient plants for a border 30 x 5 ft.

POPULAR NAME	TECHNICAL NAME	DISTANCE APART INCHES	HEIGHT INCHES	FLOWERING SEASON	COLOR
Mullein Pink	<i>Agrostemma Coronaria</i>	15	18	June-Sept.	Crimson
Calliopsis	<i>Coreopsis grandiflora</i>	18	24	June-Oct.	Yellow
Larkspur	<i>Delphinium Belladonna</i>	18	36-60	July-Oct.	Blue
Valerian	<i>Centranthus ruber</i>	12	18	July-Nov.	Various
Blanket Flower	<i>Gaillardia grandiflora</i>	12	18	July-Oct.	Yellow and red
Rose Mallow	<i>Hibiscus Moscheutos</i>	18	60	June-Sept.	Various
Pearl Flower	<i>Achillea ptarmica</i>	18	24	May-Oct.	White
Shasta Daisy	<i>Chrysanthemum maximum</i>	18	24	May-Nov.	White
Iceland Poppy	<i>Papaver nudicaule</i>	9	12	June-Nov.	White orange, yellow
Fleabane	<i>Erigeron speciosus</i>	12	30	May-Nov.	Lavender

AN ALTERNATIVE COLLECTION FOR LONG SEASON BLOOM

These twelve kinds costing One Dollar, are, with the exception of *Linum* and *Hollyhock*, first-class cutting sorts flowering continuously until frost. One seed packet of each will be sufficient for a bed 35 x 5 ft.

POPULAR NAME	TECHNICAL NAME	DISTANCE APART INCHES	HEIGHT INCHES	FLOWERING SEASON	COLOR
Devil's Bit	<i>Scabiosa caucasica</i>	12	18	June-Oct.	Lilac-blue
Sweet Sultan	<i>Centaurea dealbata</i>	18	30	June-Sept.	Rose
Thrift	<i>Armeria latifolia</i>	9	18	July-Sept.	Rose
Cone Flower	<i>Rudbeckia speciosa</i>	12	24	July-Sept.	Yellow
Beard-tongue	<i>Pentstemon barbatus</i>	12	24	June-Oct.	Red
Maltese Cross	<i>Lychnis chalcedonica</i>	12	30	July-Oct.	Scarlet
Flax	<i>Linum perenne</i>	12	18	June-Sept.	Blue
Giant Bellflower	<i>Platycodon grandiflorum</i>	12	24	July-Oct.	White and blue
Lupin	<i>Lupinus polphyllus</i>	15	48	June-Sept.	Various
Red-hot poker	<i>Tritoma uvaria</i>	18	30-48	July-Nov.	Red and orange
Avens	<i>Geum coccineum</i>	12	18	May-Aug.	Red
Hollyhock	<i>Althaea rosea</i>	24	70-90	July-Oct.	Various

GUIDE TO THE BEST KINDS

IT IS quite important to use the following Index in connection with the accompanying tables in making up the seed order. The latter the popular name is given preference, while this list is arranged alphabetically by the technical name; thus the two cross-index each other.

Achillea ptarmica (Pearl Flower). Useful for cutting. Dense clusters of pure white double flowers. Plant spreads rapidly. This is a doubled flower form of the common Sneezewort.

Agrostemma Coronaria (Mullein Pink). Beautiful silvery foliage, flowers continuously if not allowed to set seed. Var. *atrosanguinea* has very dark color.

Althaea rosea (Hollyhock). Sown early in heat, the single Hollyhock will flower freely the first season. Alleghany type has finely fringed flowers.

Alyssum saxatile (Gold Dust). Almost indispensable in its group of rockery or edging plants. It grows anywhere.

Anchusa italica (Alkanet). The variety *Dropmore* is the best known and is a great improvement on the old Alkanet and ranks as one of our best perennials. The immense flower heads are very striking. Color rich gentian blue. Opal is paler blue.

Aquilegia (Columbine). Sow the Long-Spurred strain which is by far the finest. Colors range from white and yellow to bright red and chocolate.

EARLY BLOOMING PERENNIALS

For flowers in late spring and early summer, the following are all useful for cutting, and one packet each of the eleven kinds can be had for One Dollar, and will produce sufficient plants for a bed 30 x 5 ft.

POPULAR NAME	TECHNICAL NAME	DISTANCE APART INCHES	HEIGHT INCHES	FLOWERING SEASON	COLOR
Alkanet	<i>Anchusa italica</i>	18	48	June	Blue
Columbine	<i>Aquilegia</i>	18	36	May-Sept.	Various
Pyrethrum	<i>Chrysanthemum coccineum</i>	12	30	June-July	Various
Wall Flower	<i>Cheiranthus Allioni</i>	9	12	June-Aug.	Yellow
Meadow Rue	<i>Thalictrum</i>	12	30	May-Aug.	Cream
Sweet Rocket	<i>Hesperis matronalis</i>	12	24	July-Aug.	Purple and White
Baby Breath	<i>Gypsophila paniculata</i>	12	30	June-July	White
Sea Holly	<i>Eryngium giganteum</i>	12	36	July-Sept.	Silvery blue
Speedwell	<i>Veronica spicata</i>	18	24	June-Aug.	Various
Sweet Sultan	<i>Centaurea montana</i>	18	24	May-Aug.	Blue
Catchfly	<i>Lychnis Haageana</i>	12	15	June	Scarlet

FOR LATE SUMMER AND FALL BLOOM

Every garden should have large plantings of the Early Flowering Chrysanthemum. They continue flowering after Dahlias and other flowers are cut off by early frost. One packet of each of these ten kinds should plant a bed 30 x 5 ft.

POPULAR NAME	TECHNICAL NAME	DISTANCE APART INCHES	HEIGHT INCHES	FLOWERING SEASON	COLOR
Horned Poppy	<i>Glaucium luteum</i>	18	18	June-Oct.	Orange
Purple Cone Flower	<i>Echinacea purpurea</i>	12	36	July-Oct.	Reddish purple
Stokes' Aster	<i>Stokesia cyanea</i>	9	12	July-Nov.	Blue
Heliopsis	<i>Heliopsis scabra</i>	12	30	July-Nov.	Yellow
Loosestrife	<i>Lythrum Salicaria</i>	12	60	July-Sept.	Rose
Chrysanthemum	<i>Chrysanthemum</i>	18	36	Aug.-Nov.	Various
Snakeroot	<i>Eupatorium Fraseri</i>	12	36	Aug.-Oct.	White
Sneezewort	<i>Helenium autumnale</i>	12	60	June-Oct.	Yellow
Plume Poppy	<i>Bocconia cordata</i>	18	72	July-Sept.	Buff
Globe Thistle	<i>Echinopa sphaerocephalus</i>	18	72	July-Sept.	Blue



The Pearl Achillea; white flowers, plant spreads rapidly Rudbeckia speciosa or Newmanni. Yellow Cone Flower The Valerian, Centranthus ruber; flowers pink or white Iceland Poppy, Papaver nudicaule; flowers red, yellow, white

Arabis albidia (Rock Cress). *Arabis albidia* is better than *alpina*, having larger flowers. Double forms of both to be had in plants. One of our earliest flowers, and on account of its precocity should be planted extensively.

Arenaria montana (Sandwort). A beautiful little alpine producing masses of charming white single flowers in sunshine.

Armeria latifolia (Thrift). Forms dense tufts of foliage. Flowers borne on long stems well above the leaves. The form known as *A. formosa* is the most popular and best for garden use.

Bocconia cordata (Plume Poppy). A stately plant for the back of the border or as specimens on the lawn. Very free-growing and must be restrained.

Campanula carpatica (Carpathian Harebell). The plant forms dense tufts above which rise the clear porcelain blue flowers. Var. *alba* has white flowers, but otherwise similar.

Centaurea (Sweet Sultan). My favorite perennial of the Corn Flower type is *dealbata* which lasts well when cut. *C. montana* is a perennial Cornflower much grown for cutting.

Centranthus ruber (Valerian). *Ruber* has bright rose-red flowers varying to pink. Var. *alba* is white, easily raised.

Cerastium tomentosum (Snow in Summer). As a silvery-gray border plant this old-fashioned favorite is still without a peer.

Cheiranthus Allioni (Wall Flower). Better fitted to American gardens than the true Wall Flower from which it differs in having yellow instead of brown flowers. A supposed hybrid and sometimes biennial.

Chrysanthemum. The single forms of the common hardy chrysanthemums are easily raised from seed and will flower the first year; they have been selected to light colors and are effective for decoration. Shasta Daisy (*C. maximum*, var.) is offered in several single and double forms which vary much from seed. *C. coccineum* (Pyrethrum) is a charming hardy plant, producing large daisy-like flowers in a wide range of colors from white to crimson. Particularly suited to a rich soil.

Coreopsis grandiflora (Calliopsis). One of our best hardy perennials. Fine for cutting. Most prolific in bloom. Self sows.

Delphinium (Larkspur). The finest form for cutting is *Belladonna*. From seed the colors vary from light to dark blue.

Dianthus plumarius (Pheasant-eye Pink). Deliciously fragrant, and most profuse blooming. It is most at home where it can ramble over rocks and spread without interference. *D. deltoides* grows nine inches high and has rose-colored flowers, smaller.

Echinacea purpurea (Purple Cone Flower). A very showy and strong growing plant, useful alike for cutting and border decoration. Gives an unusual color in its season.

Echinops sphaerocephalus (Globe Thistle). A stately border plant, with blue flower heads which change to white with age.

Erigeron speciosus (Fleabane). Sometimes catalogued as *Stenactis*. Several varieties. *Grandiflorus* has larger daisy-like flowers and

is *E. aromaticum melissoides* much like the white Snakeroot common in woods.

Gaillardia grandiflora (Blanket flower). One of the best twelve perennials. Unsurpassed for cutting, as it blooms continuously in any soil.

Geum (Avens). Mrs. Bradshaw is a fine double flowered variety of the "Avens." Excellent for rock garden or in front of border. In full sunlight plants resemble the Strawberry. *G. miniatum* is smaller, and a supposed hybrid. In catalogues as *G. coccineum*, but really *G. Chiloense*.

Glaucium luteum (Horned Poppy). Attractive glaucous foliage, large orange-yellow poppy-like flowers.

Gypsophila paniculata (Baby Breath). Also known as the Gause Flower. Much used in association with other flowers to give airiness. There is also a double flowered form of which a small percentage only comes true from seed.

Helenium autumnale (Sneezewort). This is one of the very best late flowering yellow perennials. Improved varieties in darker colors including red-brown, can be had in plants; do not come true from seed.

Heliopsis scabra (Heliopsis). Resembles the Sunflower. The double yellow flowers of var. *zinniaeflora* are of much value for cutting.

Hesperis (Sweet Rocket). An old sweet scented favorite that delights in heavy soil. One of the real typical old-fashioned flowers.

Hibiscus (Rose Mallow). The immense flowers are either white, rose or crimson colored. Fine for back of border or as specimens. Starts growth late. Many garden forms are offered.

All desirable.

Iberis sempervirens (Candytuft). Perennial Candytuft is much like the annual but persists. An extremely free-flowering ever-green.

Linaria Cymbalaria (Kenilworth Ivy). Self sows freely. Suited to moist partially shaded site. Behaves as an annual because frost kills it, but comes up from seed. Continuous bloomer.

Linum perenne (Flax). The plant makes a slender growth, carrying its flowers in grace-



Plume Poppy, Bocconia cordata; tall growing plant for background New Perpetual Tritoma, flowers first year The Globe Thistles are blue colored throughout plant and flower

deeper color than the type. The flowers suggest the native Asters, but come earlier.

Eryngium giganteum (Sea Holly). Handsome thistle-like foliage, and very striking when in flower, the whole plant having a metallic blue lustre. The flower heads can be dried for winter decoration.

Eupatorium Fraseri (Snakeroot). Resembling the Perennial Ageratum. There is also a fine lavender kind, *coelestinum*. The form known as *Fraseri* (suited to poor sandy soils),

ful suspension. One of the best low-growing, blue flowers.

Lupinus polyphyllus (Lupin). Flowers produced on long racemes. Handsome foliage. Colors blue, white and rose, offered in many strains. The Lupins succeed best on soils not over manured, and well drained.

Lychnis chalconica (Maltese Cross). An old garden favorite of intense scarlet color which is sometimes called Scarlet Lightning. The most brilliant flower of its season. Of the many Catchflies with large flowers, *L. Haageana* is the best. Flowers nearly two inches across. Sometimes not quite hardy.

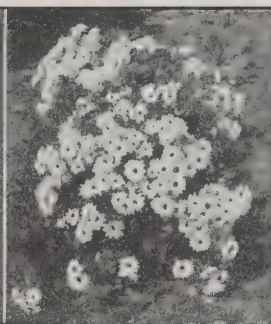
Lythrum Salicaria (Loosestrife). A strong growing and effective border plant. Var. roseum superbum is larger flowered, more robust, better color, and later blooming.

Papaver nudicaule (Iceland Poppy). Flowers continuously all summer, and is best sown where it is to bloom. A good fore-ground plant on well-drained soils.

Pentstemon barbatus (Beard Tongue). Long graceful spikes of bright red flowers, resembling minute Gloxinias. Very graceful.



Hibiscus with immense flowers of white, rose or crimson. Starts late



Single early flowering Chrysanthemum. Quite hardy



Centaurea dealbata, a form of Sweet Sultan that lasts when cut

Var. alba is white. Foliage is glaucous or whitish, giving a gray tone to border. Popular name comes from abruptly terminated or "bit off" root.

Stokesia cyanea (Stokes' Aster). The large handsome blooms are borne in great profusion once the plants are established.

Thalictrum (Meadow Rue). Very useful in the border because of its fern-like foliage.

Plant looks fragile and sensitive, but it is really quite rugged. *T. aquilegifolium*, sometimes called Feathered Columbine, is one of the best.

Tritoma (Red-hot Poker). A new strain of the Red-hot Poker (also in catalogues as *Kniphofia*) is the New Perpetual Flowering. The advantage of this type is that plants can be had in flower the first season from seed sown early in heat.

Tunica saxifraga (Tunica). A spreading tuft. For summer and fall flower. There is a doubled flower form.

Veronica spicata (Speedwell). Thrives in an open border away from shade and flowers well into autumn.

Platycodon grandiflorum (Giant Bellflower). The Japanese Bellflower or balloon flower. May be had in two colors only. Splendid border plants, starting growth late in spring.

Rudbeckia speciosa (Cone Flower). This is one of the finest Cone Flowers. The rich orange-yellow daisy-like flowers are of great value for cutting. *R. Newmanni* is another name for this.

Saponaria ocymoides (Rock Soapwort). As a ground cover for open sunny sites this is a favorite. It makes a large tuft.

Scabiosa caucasica (Devil's Bit). A perennial that flowers the first year from seed. It is like a large doubled-flower daisy on long, arching stems. It has great range of color.

Getting an Early Start Indoors. W. C. McCOLLOM

FEBRUARY AN EFFECTIVE MONTH IN STARTING SEEDS AND CUTTINGS FOR THIS YEAR'S GARDEN. FORCING FOR EASTER FLOWER.

THE gardener who lets slip by the opportunities of the next few weeks can never catch up with himself till the fall. It is indeed now or never that we have the chance of pushing ahead indoors with the things that will be wanted outside as soon as the season opens. By "indoors" I mean any arrangement that will offset the normal cold outdoors, and it may be a greenhouse, or a frame, or even the inside of a dwelling house window, so long as the temperature can be had and the air is not too dry. And remember that when temperature is named the minimum night degree is indicated; ten degrees higher in sunshine is the normal condition during the day. Most dwelling houses show a greater range of degree and the householder who essays starting seeds in the living rooms must give attention to the night temperature, as well as seeing that there is proper light and sunshine. All the vegetables and flowers mentioned below can be started in a hotbed now (February) and will surely give you a garden weeks before you would have it by sowing the seeds in the open. A hotbed can be purchased for about ten dollars and is well worth the money.

February should be one of the busiest of all months in the indoors, and the work to be done is of a critical nature, since the season's success in the garden depends very largely upon the way this work is performed: early vegetables can be sown, cuttings of bedding plants struck, cuttings of indoor decorative plants such as Crotons, Pandanus, Dracenas, etc., rooted; in brief, this month marks the beginning of the garden year, and too much

emphasis cannot be placed upon the advisability of an early start.

MAKING THE SEEDBED RIGHT

WHEN sowing seeds get the habit of doing it right; it is just as easy as the wrong way and will prevent needless losses by "damping off." Place some drainage in the bottom of the seed box or pan (say about 1 inch of broken crocks or cinders), place some moss over this to prevent the soil running through and clogging the openings, then place about 1 inch of rough soil on top and make firm, and never have a seed box loose and porous. Level off by sifting about $\frac{1}{4}$ inch of soil on top and press gently with a seed tamp. Seed can now be sown and pressed into contact with the soil, and finally cover evenly by holding a sieve above the flat and sifting on some fine soil. Water with a fine rose or let water soak up from the bottom and label at once. Always label every pan carefully with the name of the plant, date of sowing, and any other information that may be useful later on.

SEED FOR THE FLOWER GARDEN

NEARLY all the garden annuals can be sown the latter part of the month; but remember that the trouble with sowing seed early is that the little plants are usually grown too warm and get soft. Early sowing is advisable if you have a cool house to bring them along in, and you get a much stronger plant if it is grown along slowly. Another point is thin-sowing, and just as soon as the plantlets are large enough to handle dibble them

into boxes, or a frame; Ageratum, Amaranthus, Salvia, Stock, Petunia, Verbena, Lobelia, Gaillardia, Carnations, Asters, etc., can all be sown now.

Better make a resolution now that you will have some really good Sweet Peas this year, and try out the pot method: sow the seed in 2-inch pots, one seed to a pot, and when large enough transplant into 4-inch pots, these young plants must be grown very cool, not more than 45 degrees nights. A frame which has a heating coil just enough to keep the frost out makes an ideal place for Sweet Peas; they can then be carried along in such a place until it is safe to set them out. You may think this a lot of work, but you will soon be convinced if you try it once that it is well worth the effort.

And among greenhouse plants, Cyclamen, Primula, single Chrysanthemum, Antirrhinum, tuberous Begonia, and Gloxinias need sowing this month.

Water lilies for the pond are to be had if start is made now. It is quite interesting work to raise these plants from seed, and is not out of the reach of any one with the smallest greenhouse. Sow the seed the same as you would any other plant and immerse the pan so the water is flush with the soil, when the young plants are large enough to handle pot them up and keep them repotted as required until they are in a 4-inch pot from which they can be planted into tubs. Always keep the pots submerged, and when the seedlings are planted in tubs use a good rich soil about one-third leaf mold, and water frequently several times a day.

Some of the vegetables that require early sowing are: celery, onions, lettuce, leek, cauliflower, cabbage and tomato, egg plant and peppers.

NEW LIFE IN OLD PLANTS

ALL plants that have been growing in the greenhouse and flowering continuously through the winter start to fade off at this season of the year unless fed up; and as soot is one of the best plant foods we have for producing color, it can be used freely on Roses, Carnations, Snapdragon, and other flowering plants, also on cut greens such as Smilax, Asparagus or Ferns that are "off color". Soot can be "scratched into" the benches or dissolved in water a 12 inch potful to a barrel of water.

Lilies that are not showing indication of "budding up" and are wanted for Easter can be given more heat. They will stand plenty of heat, and just as soon as the buds show give liquid feeding, using good strong solution of both cow and sheep manure.

Keep the hardy bulbous plants coming along in regular rotation by bringing them in at regular intervals and placing them under the bench for a few days to give them better stem, and after forcing, you can save the bulb for planting out around the grounds, first ripen them up by storing in a cool frame and withholding water from them. And don't throw away Freesia bulbs but after flowering place them in a cool greenhouse or cold frame to ripen; after the tops have died down the boxes can be dumped and the bulbs picked out and put away until fall and then forced.

BULBS FOR SUMMER FLOWER

START summer flowering bulbous plants such as Amaryllis, yellow Calla, tuberous Begonia, Achimenes, Gloxinias, Gesnera, etc.; these plants should be knocked out of the old pots and all loose soil shaken from the roots

If you would have bedding plants—Geranium, Coleus—etc. in abundance, start propagating by taking cuttings in February



Increase the length of stem on forced bulbs by putting the young plants under the bench, away from light when about an inch long

and repotted in fresh soil. Use a light sandy compost to encourage root action and keep the soil rather on the dry side until root action has started. Excepting with Amaryllis it is advisable to start these plants in small pots giving them a shift into a larger pot later on, and where possible it is a good practice to start the bulbs in small batches to continue the flowering season as long as possible.

MAKING PLANTS FROM CUTTINGS

ALL the ornamental Begonias can be raised easily from leaf cuttings and a good leaf will furnish half a dozen plants or more, by simply making a small incision across the vein of the leaf which is then buried lightly in sand. It is difficult to get large sized shoots for cuttings of the flowering types of Begonia but short cuttings, stuck in sand, root readily and are just as good as the larger ones in the final result.

Cuttings of greenhouse plants to be started now, include Bouvardia, Poinsettias, Marguerite Daisies, Abutilons, Allamanda, Stephanotis, Fuchsias, Stevia, Chorizema, Gardenia, in fact practically all greenhouse plants that can be propagated by cuttings can be started at this time; and do not neglect an early start with Coleus, Geraniums, Achyranthus, etc., for bedding work; an early start means plenty of good sized healthy plants when bedding out time arrives. Young runners of Ferns potted up now and kept growing during summer will be a good size in fall for all kinds of decorative work.

Any good varieties of Dahlia that you are anxious to work up some stock of can be brought up and started into growth. If put on the greenhouse bench and covered with a little sand or ashes they will soon throw out numerous shoots for propagating.

Make sure now that you have all the Carnation cuttings you need, it is usually an easy matter to get cuttings at this season of the year and they root very quickly. Keep the old Carnation plants well disbudded; this means quite a lot of work at this time of year, but you never get good sized flowers if you neglect this, and where mulching hasn't been practised the plants should be fed copiously with liquid manure.

PLANTS TO FLOWER FOR EASTER

EASTER day this year falls on April 8th, and there is ample time to get plants well developed for that time. "Hard wooded" forcing plants that are needed can be started now. It is better to bring them along slowly over a longer time rather than waiting until the last minute and then subjecting them to a very high temperature, which never gets the best results. Start them with a night temperature of not more than 50 degrees and gradually work up to 60 degrees and do not exceed this unless you are actually forced to in order to have the plants in flower by Easter. Azalea, Rhododendron, Lilac, climbing Roses, hybrid perpetual Roses, Deutzia, Cytissus, Magnolia, Acacia, Genista, Bougainvillea, etc.; are the most popular woody plants for Easter decoration.

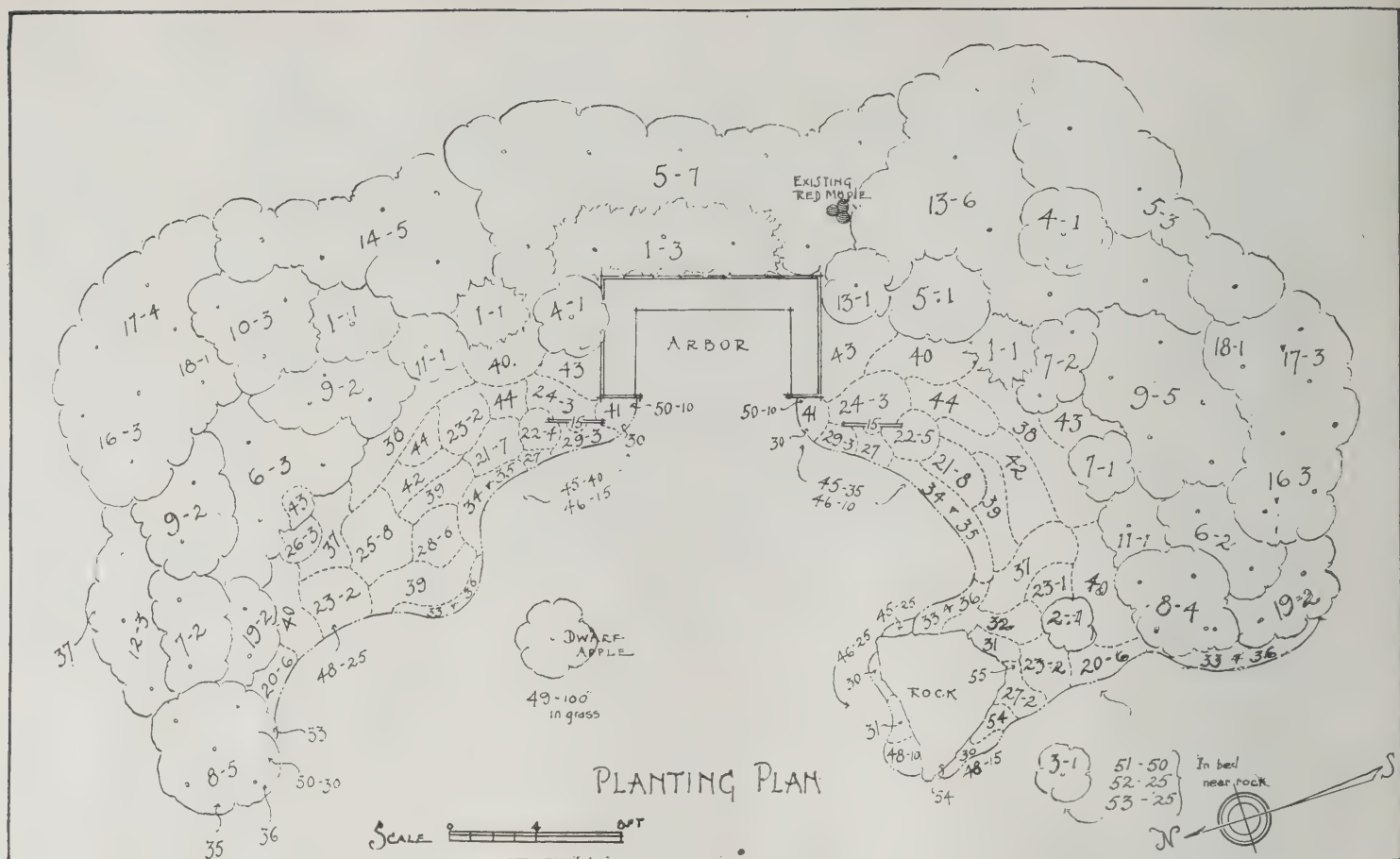
FRUIT TREES IN POTS

IT IS essential to begin forcing fruit trees slowly and if they are placed in a greenhouse with a night temperature of not more than 50 degrees and kept well sprayed they will soon show a "break;" they can then be transferred to a slightly higher temperature. Spray with water freely until the buds show, when they are to be kept rather dry.



Seeds sown indoors this month will give an early start for the outdoor garden





An Expansible Garden Plan with Rose Arbor

ELIZABETH LEONARD STRANG, Landscape Architect

COMPLETE PLANTING PLAN AND SPECIFICATIONS FOR A GARDEN OF SHRUBS AND HERBACEOUS PLANTS WITH WORKING DRAWINGS FOR A WOOD ROSE ARBOR

[EDITOR'S NOTE.—The material presented in this article will be found useful in a variety of ways. It is hardly likely that any reader will have the identical problem to solve; but on the other hand the several parts of this scheme will be easily adaptable to a great many gardens. Thus the arbor alone of this plan, may be built, or the herbaceous flower border taken into another situation, and even straightened. So adaptable indeed are the various parts that we call it an "expansible" plan.]

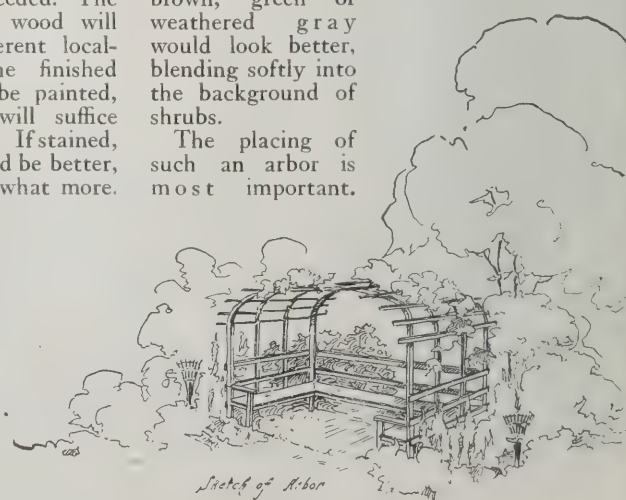
AN INTERESTING problem evolved itself from the request for a grape arbor of attractive design, yet simple enough for the prospective builder to erect with his own hands. For in connection with this there was worked out a simple planting plan that can in time be developed into a little formal flower garden.

Close observation, photographs, and measurements of well-proportioned old Colonial examples around Salem and Cambridge were of great assistance in working out the design

for the arbor. The perspective sketches show its appearance when completed and placed in its surroundings of shrubbery, and the accompanying working drawings show the dimensions and method of putting it together. There follows a list for the lumber, which may be obtained in the proper sizes and sawed into the lengths needed. The cost of the wood will vary in different localities. If the finished arbor is to be painted, hard pine will suffice for material. If stained, cypress would be better, costing somewhat more.

The wood surfaces coming in contact with the ground should be treated to a coating of creosote, applied hot. With certain types of houses white or light gray paint would look best for the superstructure, contrasting pleasantly with the foliage of the encircling hemlocks. With other houses a stain of dark brown, green or weathered gray would look better, blending softly into the background of shrubs.

The placing of such an arbor is most important.



Select a shady location with a background of shrubs, screened from the passersby, commanding a pleasant outlook, and on the axis of a prominent door or window of the house.

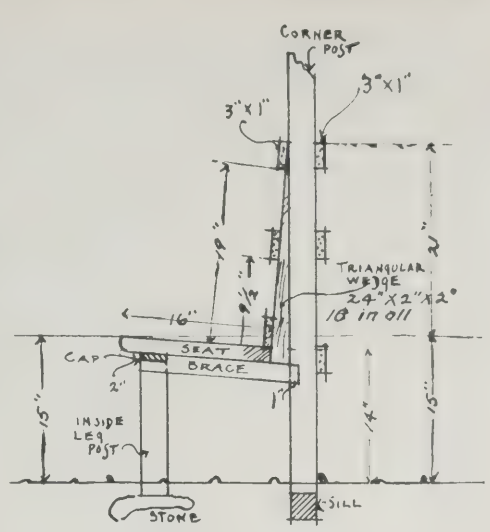
PLANTING LIST FOR GARDEN AND ARBOR
(The figures are the reference numbers in the plan shown on facing page.)

TREES AND SHRUBS		PRICE
1 Tsuga canadensis, 6 plants, 3 ft. apart, American Hemlock, 3 in. high	\$15.00	
2 Magnolia Soulangiana, 1 plant Soulang's Magnolia, 3 ft. high	1.75	
3 Malus ioensis var. Bechtel's, 1 plant Bechtel's double flowering Crab, 3 ft. high	1.00	
4 Cornus florida, 2 plants 6 ft. apart, White Flowering Dogwood, 6 ft. high	2.00	
5 Cornus alternifolia, 11 plants, 4 ft. apart, Alternate-leaved Dogwood, 5 ft. high	5.50	
6 Tamarix africana, 5 plants, 3 ft. apart, Fall flowering Tamarisk, 2 ft.-3 ft. high	1.00	
7 Tamarix gallica, 5 plants, 3 ft. apart, Spring flowering Tamarisk, 2 ft.-3 ft. high	1.00	
8 Deutzia Lemoinei, 9 plants, 3 ft. apart, Lemoine's Deutzia, 12 in. high	2.25	
9 Enochorda grandiflora, 9 plants, 3 ft. apart, Pearl bush, 3 ft. high	4.50	
10 Evonymus alatus, 3 plants, 3 ft. apart, Winged Evonymus, 2 ft.-3 ft. high	7.50	
11 Forsythia intermedia, 2 plants, 3 ft. apart, Golden bell, 4 ft. high	.80	
12 Fothergilla major, 3 plants, 3 ft. apart, Bottle brush, 4 ft.-5 ft. high	4.50	
13 Hamamelis virginiana, 7 plants, 4 ft. apart, Witch Hazel, 3 ft. high	2.45	
14 Philadelphus grandiflorus, 5 plants, 3 ft. apart, Mock Orange, 5 ft.-6 ft. high	2.50	
15 Rose, Harison's Yellow, 2 plants, Old-fashioned yellow Rose, 2 years	.70	

16 Syringa persica var. alba, 6 plants, 3 ft. apart, White Persian Lilac, 3 ft. high	\$2.40
17 Syringa vulgaris var. alba grandiflora, 7 plants, 3 ft. apart, Hybrid white Lilac, 3 ft. high	2.80
18 Syringa vulgaris Madame Lemoine, 2 plants, Double white Lilac, 4 ft. high	1.00
19 Spiraea Van Houttei, 4 plants, 4 ft. apart, Van Houtte's Spiraea, 3 ft. high	1.20

HERBACEOUS PERENNIALS		PRICE
20 Iris Germanica, 12 plants, 12 in. apart, German Iris, blue or yellow varieties	\$1.00	
21 Iris pallida var. dalmatica, 15 plants, 12 in. apart, Tall pale blue Iris	1.88	
22 Papaver orientale, 9 plants, 12 in. apart, Scarlet Oriental Poppy	.75	
23 Paeonia, peony, sulphur white, 7 plants, 18 in. apart, Duchesse de Nemours, early, Madame Emilie Lemoine, midseason; Marie Lemoine, very late	1.75	
24 Delphinium Belladonna, 6 plants, 24 in. apart, Turquoise blue Larkspur	.75	
25 Phlox paniculata, 8 plants, 12 in. apart, var. James Bennett, coral red	1.00	
26 Eryngium amethystinum, 3 plants, 12 in. apart, Sea Holly	.45	
27 Gypsophila paniculata, 4 plants, 18 in. apart, Infant's Breath	1.00	
28 Statice latifolia, 6 plants, 12 in. apart, Sea Lavender	.50	
29 Chrysanthemum, hardy, 6 plants, 12 in. apart, var. Golden button	.50	

PERENNIAL FLOWER SEEDS		PRICE
30 Arabis albidia, Rock Cress, plant 6 in. apart	1 pkt.	\$1.10
31 Aubretia deltoidea, Purple Wall Cress, plant 6 in. apart	1 pkt.	.25
32 Chieranthus Allioni, Orange Wallflower, plant 6 in. apart	1 pkt.	.25
33 Myosotis alpestris Victoria Early dwarf blue Forget-me-not, plant 6 in. apart	1 pkt.	.10



SECTION THROUGH A-B
Showing construction of seat in arbor

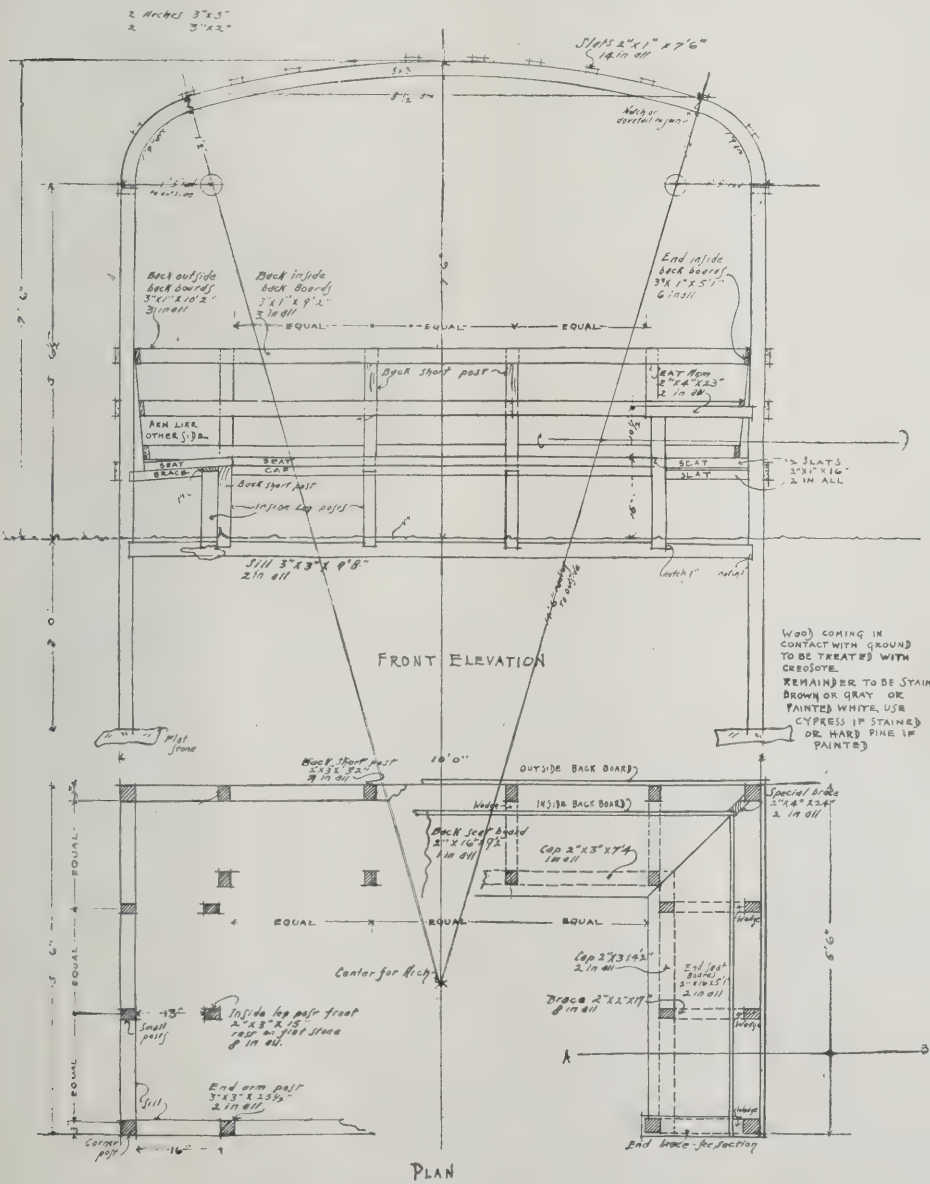
34 Anemone sylvestris, Windflower, plant 12 in. apart	1 pkt.	\$1.10
35 Primula, yellow, English Primrose, plant 8 in. apart	1 pkt.	.25
36 Papaver nudicaule, mixed, Iceland Poppy, plant 8 in. apart	1 pkt.	.10
37 Lupinus polyphyllus, white, White Lupin, 12 in. apart	2 pkt.	.10
38 Digitalis purpurea var. alba, White Foxglove, plant 12 in. apart	3 pkt.	.15
39 Dianthus barbatus, white and mixed, Sweet William, plant 8 in. apart	3 pkt.	.15
40 Althaea rosea, double pink, Hollyhock, plant 12 in. apart	1 pkt.	.10
41 Thalictrum adiantifolium, Meadow Rue, plant 12 in. apart	1 pkt.	.15
42 Scabiosa caucasica, Lavender blue Scabius, plant 8 in. apart	1 pkt.	.15
43 Helenium autumnale superbum, Yellow Sneezewort, plant 12 in. apart	1 pkt.	.25
44 Aconitum Wilsoni, Late Monkshood, light blue	1 pkt.	.15

BULBS TO BE PLANTED IN FALL		PRICE
45 Crocus, mammoth yellow, 100 bulbs		\$1.50
46 Crocus, giant purple, 50 bulbs		.88
47 Trumpet Narcissus, Empress, 50 bulbs		1.63
48 Double Narcissus, Van Sion, 25 bulbs		1.00
49 Narcissus poeticus, Poet's Narcissus, white, 100 bulbs		.80
50 Early yellow Tulip Chrysolora, 50 bulbs		.75
51 Darwin Tulip Clara Butt, pink, 50 bulbs		1.50
52 Darwin Tulip Ergaste, violet, 25 bulbs		1.00
53 Darwin Tulip Rev. Ewbank, heliotrope, 25 bulbs		1.12

VINES FOR ARBOR		PRICE
54 Celastrus scandens, Bittersweet, 2 plants, 3 ft.		\$4.40
55 Rosa multiflora, trailing Rose, 1 plant, 2 years		.50

These items grouped are: Trees and shrubs \$59.65; Perennial plants, \$9.24; Perennial seeds, \$2.35; Bulbs, \$10.18; Vines, \$.70; or a total of \$82.12 for the whole scheme.

TIMBERS REQUIRED FOR ARBOR	
ARCH	
2 Circular arches, sawn to indicated radius	3" x 3"
2 Circular arches, sawn to indicated radius	2" x 3"
4 Upright corner posts	3" x 3" x 8' 5"
4 Smaller upright posts	2" x 3" x 5' 7"
4 Upright corner posts	3" x 3" x 8' 5"
4 Smaller upright posts	2" x 3" x 5' 7"
14 Slats or cross pieces for roof	1" x 2" x 7' 6"
2 Caps for tops of uprights	2" x 3" x 5' 6"
2 Long sills underground	3" x 3" x 9' 8"
2 Short sills underground	3" x 3" x 5' 2"
SEAT	
6 Outside slats at ends across back	1" x 3" x 5' 1"
6 Inside slats at ends across back	1" x 3" x 5' 1"
3 Outside slats across long back of seat	1" x 3" x 10' 2"
3 Inside slats across long back of seat	1" x 3" x 10' 2"
4 Short upright leg posts, back of long side	2" x 3" x 3' 3"
8 Short upright inside front leg posts	2" x 3" x 15"
8 Braces under inside front leg posts	2" x 3" x 17"
1 Plank for long seat boards	2" x 16" x 9' 2"
1 Cap for front edge of long seat board	2" x 3" x 7' 4"
2 Planks for side seat board	2" x 16" x 5' 1"
2 Caps for front edges of side seat boards	2" x 3" x 4' 2"
2 Special corner braces, triangular, at back corner posts, seat back	2" x 4" x 24"
10 Triangular wedges in seat back	2" x 2" x 24"
2 Seat end upright arm posts	3" x 3" x 25"
2 Seat arms	2" x 4" x 23"
2 End braces under plank at seat arm	2" x 2" x 16"
4 Slats to hide slanting end of seat at arm	1" x 2" x 16"



This plan and elevation of the rose arbor shown on facing page

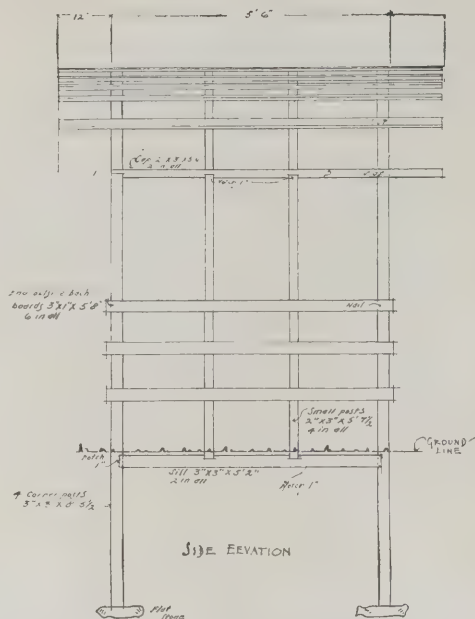
Having in this particular instance located the arbor on a line with the rear steps of the living porch, and under the branches of a handsome Red Maple, whose trunk came back of and a little to one side of the centre, instead of stiffly on the axis, the next consideration was to create an attractive frame of planting which would hide the boundaries of the property and give seclusion from a near-by house.

Accordingly there was placed immediately under the branches a screen planting of shrubs which would grow quickly to a large size, preserve something of a woody or informal character, and thrive in the shade.

These were the Alternate-leaved Dogwood, a particularly shapely small tree having dark glossy foliage, and blue fruit with red petioles; the Witch Hazel, whose large green leaves quickly give an effect of luxuriance and which in autumn turn to a glowing yellow, followed in November by myriads of lacy yellow flowers; and the tall form of the quick-growing Mock Orange, commonly called "Syringa." This form (*Philadelphus grandiflorus*) lacks the fragrance of the familiar old-fashioned variety (*P. coronarius*) but its growth is much taller. In front of these tall shrubs Hemlocks were placed at irregular intervals, their soft feathery green proving an attraction for both summer and winter. Here and there for contrast were white Flowering Dogwoods.

The ends of the encircling shrub masses as they emerged from the shade were planted with interesting shrubs selected particularly for spring bloom and autumn color.

In early spring a few golden Forsythias stood out against the dark green Hemlock, the cheerful effect still further enhanced by the Yellow Crocus and Daffodils springing up at their feet. Another feature of the early spring was a large-flowering pink Magnolia, picturesquely placed at one side of a large rock where location suggested the oval design for the future garden.



Side elevation of arbor shown on pages 22 and 23

As a background hybrid white Lilacs flanked the sides of the planting masses and in front of these were various attractive shrubs. Of these the Pearl bush is particularly noticeable for its blossom of snowy white, and for its early foliage, which clothes the bush with clear light green while many shrubs are yet clinging tightly to their leaf scales. The Tamarix displays an attractive blending of feathery pink blossom and fern-like foliage, one in the spring, the other in the fall. In autumn the leaves of the Winged Evonymus are the most attractive pinkish red imaginable, survived by pendant fruit of coral pink, which bursting discloses scarlet seed. The Fothergilla is beautiful at both seasons—in spring being covered with large white blossoms resem-

bling a bottle brush, and its foliage turning deep red in the fall. As a facing to these shrubs were the well-known but nevertheless attractive *Spiraea van Houtteii* and the lower growing *Deutzia Lemoinei*, whose white masses of flowers form an excellent background for May-flowering Tulips.

In front of the shrubs were a few bright flowers, and with this simple beginning it is expected at some future time to develop this informal planting into an attractive garden, as shown by the accompanying sketch, having in the centre a turf panel inclosed by a border of flowers, backed by still more shrubs and an unclipped hedge of Japanese Barberry.

For the present planting, the flowers are kept very dainty and simple in their effect, the idea being to provide for a succession of peculiarly effective and unusual combinations.

First comes Crocus of purple and gold, Daffodils, and the creeping White Arabis, then early yellow Tulips and blue Forget-me-not, soft yellow Primroses and nodding Iceland Poppies of white, orange and yellow, and in one place, purple Aubretia combined with Wallflowers of a vivid orange.

In May, under the Bechtel's Crab with its fragrant double pink blossoms, flourished pink and lavender Darwin Tulips. A little later comes an effect composed of creamy white Peonies, tall lavender-blue Iris pallida, orange-scarlet Oriental Poppies and the soft sulphur yellow of Harison's Rose.

A competent man could prepare the soil and do the planting in three or four days; and although two loads of barnyard fertilizer will be sufficient, if wood ashes are at hand it will make the soil that much better. I append an estimate for the retail cost of the planting. Ten per cent. of the cost of the plants should cover the cost of packing and freight. While many perennials may be raised from seed if one has time and inclination, others are necessarily purchased, as is shown on the accompanying list.

Flowering Shrubs as Hedge Plants. GLADYS HYATT SINCLAIR

Michigan

YOU CAN HAVE BLOOM ANY MONTH OF THE SEASON, OR BY JUDICIOUS BLENDING MAKE THE HEDGE AN INTEGRAL PART OF THE GARDEN COLOR SCHEME IN SUCCESSIVE PERIODS—POPULAR SHRUBS AVAILABLE FOR PRESENT PLANTING

IF A plain green hedge is a glorified fence, what is a flowering hedge? A luxury? Not by any means! Flowering hedges are easier for the average home grounds than hedges of evergreen. Only the strictly formal garden demands the clipped evergreen hedge.

Some of the oldest and commonest shrubs make fine hedges for dividing flower and vegetable gardens, screening the garden from the street, sheltering a border for Lilies and, best of all, for securing privacy at the back and sides of the garden. A mixed hedge, while not, of course, so showy at any one time is in bloom much longer than one of a single sort of shrub and the many forms and tints of foliage give variation all summer. For a mixed hedge one must be careful to choose shrubs that will grow nearly of a height.

In a mixed hedge our two natives, Red Bud (*Cercis canadensis*) and the white Flowering Dogwood (*Cornus florida*) should certainly find place. The former grows the taller unless severely trimmed. It is a straight slender shrub that covers itself, even down on its trunk, with a mantle of small flowers of peach-

blossom tint until the whole shrub is a huge bouquet before ever a leaf appears. It bears immense red leathery pods with bean-looking seeds in them. These sprout easily if soaked in warm water and this is the way to grow these shrubs if one wants many, to paint a spring pastel in a woods-edge, for instance, or to open the season's ball in a hedge of white flowering shrubs. Don't put them with colored Lilacs. If the Lilacs hurry or the Red Buds linger you will have toothache.

The Dogwood is more sociable and would be a fine companion for Lilacs. It grows with wide-spreading branches, its great snowy four-petalled blossoms set starlike on the sprays which make wonderful decorations in the house without harming the shrub if the pruning is carefully done.

Another very early bloomer in the mixed hedge is the Golden Bell (*Forsythia viridissima*). This is a straight slim sort, its wands thickly gemmed with golden bells in April. This shrub is the very heart and spirit of early spring embodied—slim and cool and bright and windswung, at once promise and fulfilment.

A Lilac hedge is a beautiful thing, and because Lilacs *will* live without care they are usually made to do so, and seldom seen at their best. They are starved, choked and let to "sucker" until it is small wonder many people are prejudiced against them. If the few suckers that come each year are taken out and the bushes pruned after they blossom there are few handsomer shrubs. Their growth is astonishing if they are heavily fed. When pruning, cut each blossom stalk a foot behind the flowers and shorten rampant stems to maintain approximate trimness.

Besides the common purple and white and the old Persian, which make as good hedges as any, Charles X. is a single purple with good foliage, President Grevy a double bluish purple and Mme. Casimir Perier the best and hardiest double white. The tall Lilac hedge finds its place at the back boundary of the ordinary lot or as a screen for laundry yard or playground.

Of the same sheltering height is Mock Orange (*Philadelphus coronarius*) commonly misnamed Syringa which is the real name

of Lilac. Our own hedge is fifteen feet high and a joy to sight and smell in late May and June.

For May's adorning the tall hedge should hold the Japanese Snowball (*Viburnum tomentosum*). Even those who despise the buggy old Snowball will like this for its handsome, dark, clean foliage, its medium sized, showy round blossoms and its general air of brisk cleanliness. Snowballs show neglect as quickly as any shrub, although they will live indefinitely without care. They tend to grow long legged with twiggy tops that will not bloom. Prune, after flowering, for straight young wood and cut the central growth severely that the shrub may have air and light inside.

Deutzias bloom in late May and the first half of June. *Candidissima plena* and *Pride of Rochester* are tall Deutzias with lovely pure white flowers; *crenata rosea plena* is a tall double white flushed with delicate pink.

June brings the Roses, here as elsewhere. One's thoughts turn naturally to the new Hybrid Sweetbriars, but in the mixed hedge they are a mistake. They cannot have room for their graceful arching sprays and still keep the hedge form, as when they are planted together. The two Roses that will grow tall enough and stout enough to hold a place in the shelter hedge are *Harison's Yellow*, the early half-double yellow Rose of our childhood and *Persian Yellow* the hardy double yellow Rose with beautiful buds. They are both thorny things but good at self defence and will keep up with their neighbors if you give them enough to eat. When pruning, spare these; for this season's flowers are borne on the ends of last year's wood.

Our native Elders furnish July's bloom in the tall hedge. Few shrubs are more showy than these with their big snowy corymbs held well up to view.



Van Houtte's *Spiraea* which makes a hedge of snowy white bloom in May. Hardy and clean

August claims *Hydrangea paniculata*, seen very often but none too often as a hedge. Prune this in the late fall or early spring as it blooms after midsummer. Cut all flower sprays, all weak growth and dead wood.

In September and October the Groundsel tree hangs out its fluffy white seed pods as decorations and finishes the season among the tall shrubs.

Hedges that bloom, of medium height, should be oftener used in the garden to suggest division without actual seclusion. Bordering a drive, separating borders of warring colors, hiding fences and foundations or skillfully placed to lead one by its lane of bloom to discover a special garden picture, the low flowering hedge adds a charm obtainable in no other way.

For a hedge of one shrub to bloom in May the well loved *Spiraea Van Houttei* is incomparable. Hardy and hearty and clean, graceful all summer and a very snowdrift in spring, it stands alone. Cutting the old wood and shortening the branches after it has bloomed, to keep the outline, are sufficient attention.

Japan Quince with its flaming flowers in

May is useful in hedges. It can be trimmed very low and still bloom freely, or let to grow to medium size. Where a stiff three-foot suggestion of division is wanted this shrub is good; but even well established plantings will not stand what *Van Houttei* will, nor are they as handsome.

Kerria japonica is a treasure in a mixed hedge. Its leaves are hard, shining green, its growth most graceful and its many bright yellow blossoms about the size of mock orange blooms, give a distinct and cheerful note to early May. So handsome and striking is this shrub that I am surprised to see it so little used. *Kerria* usually gives a second crop of flowers in

the fall and its leaves stay green until very late. Give it plenty of room well away from pink flowering shrubs. [I think it needs a deep, rich, or at least moist soil, for the plant refuses to grow on our gravelly Garden City soil.—L. B.]

The old double flowering Almond, though short of season, is worth a place in the mixed hedge for its delicate pink beauty. Its cousin, the purple leaved plum (*Prunus Pissardi*), is a fountain of white bloom in spring and its leaves accent the turns of a winding hedge nicely all summer.

Beside the Almond, plant the old favorite *Bridal Wreath* (*Spiraea prunifolia*) with its garlands of tiny snowy rosettes in May; and beside that another variety, *Margarita*, that begins in June with its corymbs of dainty pink and continues well through the summer.

A comparatively new hedge shrub *Balls of Snow* (*Hydrangea arborescens* var. *grandiflora*), is a treasure. Growing only to medium height, it begins to cover itself with its large, round white heads of bloom in June, shortly after the May pageant of hedge bloom is past, and holds them for eight to ten weeks. but cuttings of this *Hydrangea*, taken in fall, root



Old-fashioned *Syringa* or Mock Orange. 15 ft. high and graciously fragrant



Diervilla or *Weigela*, a good tempered shrub, flowering equally well in sunshine or shade

in spring as readily as any cuttings and one can soon raise any quantity.

Another shrub that is beautiful in June is the Weigela. The one in the photograph, (amabilis) stood at the end of a mixed hedge with its hundreds of soft pink sprays, introducing one to a cross-garden border of pink and white Peonies, Sweet Williams, Canterbury bells and white Lilies with Pinks in front and Foxgloves behind. There are several other standard pink Weigelas, one good white (candida), and as a dark red Eva Rathke.

In July follows the "Mountain-ash leaved Spirea" really Sorbaria sorbifolia, with its handsome leaves and fleecy white pyramids of bloom that last into August. With plenty of food and water this increases rapidly and would make a handsome hedge by itself. The

variety, stellipeda, is said to have larger panicles, but I have never seen it.

For the season of no flowers plant a few Snow-berry bushes; the Common or the Japan Barberry for a thousand orange-red fruits to every branch; Coral-berry or Indian Currant for the little dark red clusters along its stem; and High-bush Cranberry for bright scarlet fruits in showy great bunches, enduring to mid-winter.

Many flowering hedges are not what they should be because the soil was not right in the beginning. The kind of soil is not important but the quality is. Two feet of good top soil with a third old manure is not too good for shrubs. If the soil is sandy, add lime. Then give stable litter or leaves every fall for fertilizer, for protection in winter, for mulch in summer and for defence from weeds.

For a permanent planting, set tall shrubs four to five feet apart; medium and low ones three feet. Grass should never be allowed around the feet of flowering shrubs, but if one cares to lift the coarser part of the covering each spring, bulbs will do well here and be a valuable addition; as will English Daisies, Phlox subulata, Violas, Houstonia, Lily-of-the-valley, Myrtle, Forget-me-nots or the low growing, early blooming wild flowers.

Beautifying so much space, being, once made, so handsome and permanent, needing so little care and furnishing decoration for house as well as garden, there are few plant formations, take it all in all, more valuable for the space, time and money invested than the flowering hedge. Plant one this spring!

Planting on the Basis of Personal Needs. E. L. KIRKPATRICK,

Cornell University

HOW much of this thing shall I sow? That is the ever present question when starting in each year. Safety lies in plenty, but space may be limited, and unnecessary labor on the surplus over needs is expensive, or at least wasteful. Although amounts may change with garden space available, there should be relative proportions among various vegetables planted, as far as possible. On a small plot reduce the plantings of certain rank growing crops and increase plantings of crops with higher returns for the area covered. The accompanying table and the diagram, for a garden plot 40 x 50 ft., are arranged from the standpoint of a family of five persons, to determine the amount of various vegetables to plant. Given the amount to plant *per person* and the distance of planting, you can easily determine the space needed for each crop.

Suppose, however, that your garden plot is larger than 40 x 50 ft. First, include proportionate amounts of the larger growing vegetables desired, as squashes, potatoes, kohlrabi, pop corn and sweet potatoes. Next, increase the amount of each vegetable by one-fifth to one-fourth, as size of the plot warrants, in order to make sure of a generous supply of each crop. If still more space is available, include a few crops which are especially well adapted to soil, cultural requirements and special needs, in order that surplus products may be readily disposed of at a fair profit.

On the other hand, if the plot is smaller than 40 x 50 ft., plant less of the vegetables requiring considerable space and giving relatively low returns per area covered or leave them out entirely. Compare diagram No. 2 with No. 1 for a definite idea of the crops which may be left out where space is limited.

DOUBLE CROPS AND SUCCESSION

Note the suggestion of double cropping and succession cropping in both diagrams. Aim to keep all space occupied throughout the season by planting the smaller growing, early maturing crops between the rows or plants of the larger maturing, as well as by replacing each early crop with some other crop as soon as the former is removed. Use the row method of laying out the garden as shown, also. You will soon appreciate the advantages of the row method over that formerly practised of planting each vegetable in a separate raised bed, namely, cultivation

with the hand plow or wheel-hoe is possible, no space is wasted in paths, and moisture is more readily conserved.

After determining the amount of the various crops to plant per family unit, refer again to the planting table for suggestive varieties, amount of seeds required, number of seeds or plants per hill in row and depth of covering. Provide vegetable plants for use where "transplanted" appears in the last column of the table. Set the "transplants" a bit deeper in the garden than plants have stood in the hot-bed or coldframe.

As soon as you have completed your planting table and drawn a diagram of the plot, indicating the exact location of each crop, look after ordering the seed supply.

TO BUY SEEDS RIGHT

Profit by placing your seed order early, with a reliable seed firm. Do not count on

the local grocer. Reliable seed dealers have developed special strains of the different varieties, giving attention to earliness, productiveness and good quality, and you pay no more either! Purchase small seeds, celery, cabbage, parsnips, lettuce, etc., by the ounce, and larger seeds, peas, beans, corn, etc., by the quart where possible. Let the seeds planted from the ounce or quart the first season constitute a crop test. Where seeds planted are satisfactory keep the supply not planted on hand for another season or two, since the lifetime of most seeds is two or more years. Arrange for early plants, cabbage, celery and tomatoes with some near-by plant grower, unless you have space available for hotbed and coldframe for growing your own supply.

USING FERTILIZERS, ETC.

Have a generous quantity of well-rotted

Bunch Beans	Planted	May 10-20	Followed by	Late Turnips	Jul 20-30
Pole Beans	"	" 20-30		Early Sweet Corn	May 1-10
"	"	" " "	"	"	" " "
Late Sweet Corn	"	June 1-10			
Onions (Sets)	"	Apr. 15-20			
Cucumbers	"	May 10-20	Followed by	Lettuce & Parsley	Aug. " "
Radishes	"	Apr. 15-20			
Tomatoes (Plants) Set		June 1-10			
Radishes	Planted	May 10-20			
Tomatoes	" Set	June 1-10			
Turnips	Planted	Apr. 15-20			
Eggplants	Set	June 1-10			
Early Beets	Planted	Apr. 15-20			
Peppers	Set	June 1-10			
Early Peas	Planted	Apr. 15-20	Followed by	Late Celery	Jul. 1-10
Late "	"	May 10-20	"	"	Winter Radishes " 20-30
Early Cabbage	Set	Apr. 15-30	(Lettuce Plants Set Between Cabbages)		
Spinach	Planted	" " "	Followed by	Late Cabbage	June 20-30
Early Lettuce	"	" " "	"	" Cauliflower	" 1-10
Carrots	"	" " "			
Parsnips	"	May 1-10			
Parsley (Seeds & Plants)	"	" " "	Salsify	Planted	May 1-10
Celery (Plants) Set	"	" " "	Followed by	Spinach	Aug 1-10

Planting diagram for vegetable plot 40 by 50 feet. Designed to supply the needs of a family of five

CHART FOR PLANNING THE GARDEN ON A PER PERSON UNIT						
VEGETABLE	AMOUNT TO PLANT PER PERSON	SUGGESTED VARIETIES	DISTANCE OF PLANTING	SEEDS REQUIRED FOR 50-FOOT ROW	NO. IN HILL	DEPTH OF COVERING
Beans (bunch)	10 ft. row	Refugee 1001 Wardwell Kidney Wax	2 in. rows, 3 ft.	1 pt.	1 or 2	2 in.
Beans (pole)	4 hills	Lazy Wife Golden Cluster	2½ ft. each way	½ pt.	3 or 4	2 in.
Beets	10 ft. row	Eclipse Detroit Dark Red (late)	1½ in. rows 1½ ft.	1 oz.	1 or 2	1½ in.
Cabbage	10 plants	Early Jersey Wakefield Flat Dutch (late)	18 in. by 24 in.	¼ oz.	1	Trspl't.
Carrot	7½ ft. row	Oxheart Danvers Half-long	1 in. row, 1½ ft.	½ oz.	1	½ in. to ¾ in.
Cauliflower	5 plants	Snowball Dwarf Erfurt	18 in. by 24 in.	½ oz.	1	Trspl't.
Celery	30 plants	Golden Self-blanching White Plume (late)	5 in. rows, 3 ft.	¼ oz.	1	Trspl't.
Corn (sweet)	8 hills	Golden Bantam Evergreen	2½ ft. each way	½ pt.	3	2 in.
Cucumber	2 hills	Davis Perfect White Spine	5 ft. each way	¼ oz.	8	¾ in. to 1 in.
Eggplant	5 plants	Black Beauty New York Improved	2½ ft. each way	¼ oz.	1	Trspl't.
Lettuce	10 ft. row	May King Iceberg	Sow thinly in rows 15 in. apart	¼ oz.	1	½ in. to ¾ in.
Onion (sets)	10 ft. row	Silverskin Southport	1½ in. rows, 10 in.	2 qts.	1	1 in. to 1½ in.
Parsley	5 ft. row	Extra Curled Dwarf	2 in. row, 15 in.	¼ oz.	1	½ in. to ¾ in.
Parsnip	10 ft. row	Hollow Crown Abbott's	1 in. row, 1½ ft.	¼ oz.	1	¾ in. to 1 in.
Peas	20 ft. double row	Surprise Excelsoir Telephone	2 in. in 8 in. double rows 2½ ft.	1 qt.	2	2 in.
Pepper	5 plants	Ruby King	2 ft. apart each way	½ oz.	1	Trspl't.
Radish	2½ ft. row	Earliest White Scarlet Frame	1 in. rows, 10 in.	½ oz.	1	½ in.
Salsify	5 in. row	Sandwich Island Long White	1 in. rows, 1½ ft.	½ oz.	1	¾ to 1 in.
Spinach	15 in. row	Savoy New Zealand	2 in. rows, 12 in.	½ oz.	1	1 to 1½ in.
Tomato	8 plants	Earliana Bonny Best	2½ ft. each way	¼ oz.	1	Trspl't.
Turnips	10 in. row	White Milan Snowball	1½ in. rows, 1½ ft.	½ oz.	1	½ in.

manure on hand for use unless the garden has been manured and plowed in the fall. Apply the manure at the rate of one or two good sized loads per 40 x 50 ft. plot spreading it evenly on the surface and see that it is well turned under. See that the fertilizers are

Early Turnips	Planted April 15-20
Cabbage Plants-Lettuce Between Plants-	" 20-30 Followed by Winter Radishes Aug. 1-10
Radishes	Planted " 15-20
"	" " " "
Cabbage " " " Plants	" 20-30 " " " Turnips " " "
Lettuce	Planted " 15-20
Early Beets	" " " "
Peas	" " " " " " Celery Jul. " "
Onions (Sets)	" " " "
"	" " " "
Peas	" " " " " " " " " "
Carrots	" May 1-10
"	" " " "
Bunch Beans	" " 10-20
Spinach	" April 15-20
"	" " " " " " " One Row Tomatoes June " (Plants)
Bunch Beans	" May 10-20
Late Beets	" " " "

Planting diagram for a plot 18 by 30 or 35 feet. As compared with the diagram on the facing page it will be noticed that there are less of the vegetables requiring large space and giving relatively low returns per area covered

ready for use as the soil is being fitted; apply from 50 to 100 lbs. of a good mixture containing 4-6 per cent. nitrogen and 8-10 per cent. of phosphoric acid per 40 x 50 ft. garden plot. Sow the fertilizer broadcast, as evenly as possible just before the soil is given the final raking for planting. Make lighter applications of nitrate of soda along near the rows of leaf crops, as lettuce, spinach and cabbage, where growth seems slow or checked.

THE TOOLS YOU NEED

Do not overlook the matter of suitable garden tools. Procure good tools and have them on hand when needed. The following tools are necessary, and may be secured at the prices stated:

Spading fork	\$1.00
Garden rake	.75
Hoe	.65
Planting line	.25
Measuring tape	.40
Garden trowel	.20
Transplanting dibble	.25
Total	\$3.50

Additional tools which will be useful throughout the gardening season are:

Wheel-hoe	\$2.75
Seed drill	3.50
Knapsack sprayer	3.25
Wheel barrow	2.50
Total	\$12.50

Save time and energy in the garden by keeping all tools in good working order, sharp and bright, throughout the season. A rusty hoe or spade has no place in the garden or shed. Thoroughly clean and oil each tool before hanging it up.

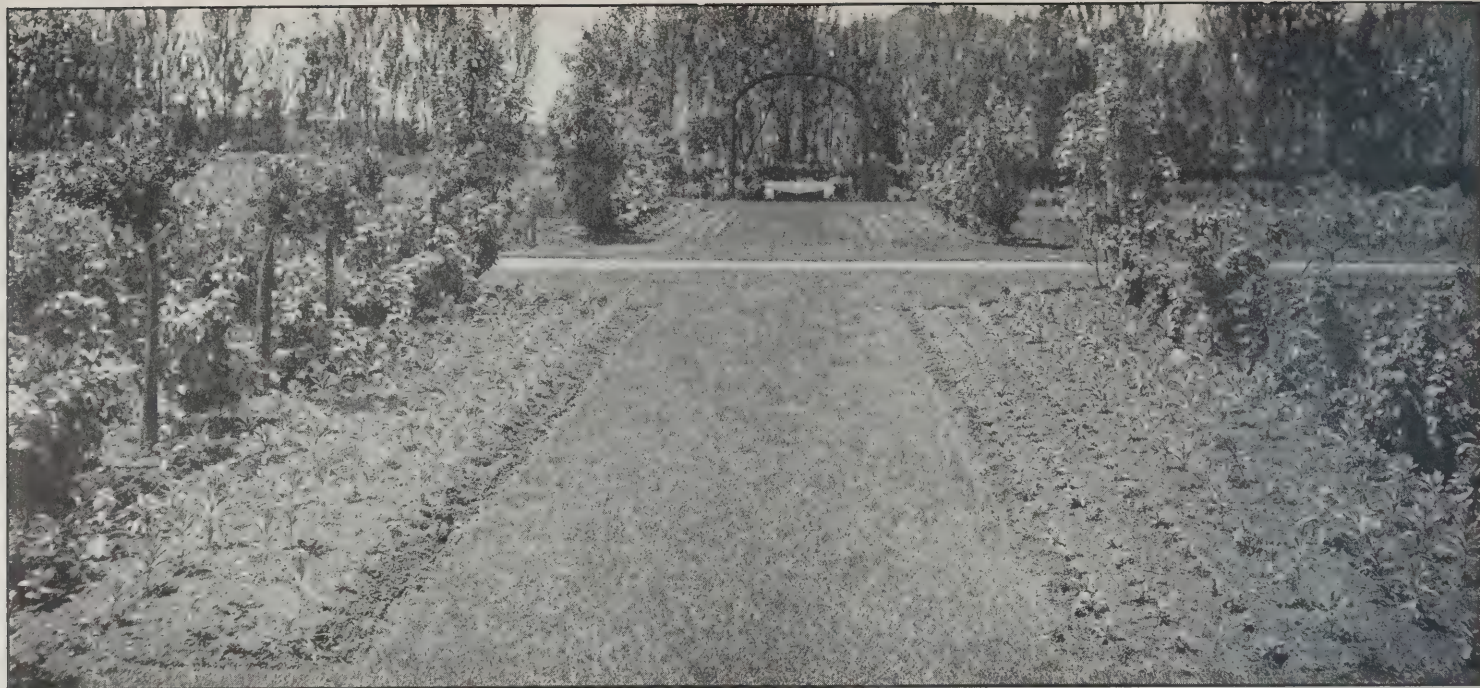
The Cabbage Root-Worm Maggot

UP TO three years ago all my attempts to grow cauliflower had been failures. The cabbage root-worm maggots destroyed every plant, despite my setting the plants in different parts of the garden each year, and also trying in vain all the standard remedies, such as air-slaked lime, wood ashes, nitrate of soda and tobacco dust.

Three years ago I set the plants in a part of the garden that had not been cropped with any member of the cabbage family for five years at least, thinking I might thus dodge this pest. It failed! The maggots began their attack on the plants as early as in the other years. I then resorted to trying possible destroyers of my own selection. These included carbon dioxide—a teaspoonful in a hole beside the plant—whale oil soap emulsion, carbolic acid emulsion and finally a weak kerosene emulsion. The latter seemingly was effective, for ten of the dozen plants it was applied to recovered from the maggots and formed heads.

The next year sixty cauliflower plants were set in a part of the garden where plants had been destroyed by these maggots two years before. On the first evidence of the presence of the maggots the entire patch was treated with coal-oil emulsion—one pint to a plant—with the result that not a plant was destroyed by the maggots. This emulsion was of one to thirty strength.

Whether the kerosene kills or drives away the maggots I am not sure.
Scotia, N. Y. W. RAMSDELL.



"The good 'grower' is by no means always a good 'gardener'". A good gardener has his ground arranged for least labor

Easy Plans That Will Really Work

SAVING TIME AND SPACE IN GROWING CROPS FOR BOTH WINTER AND SUMMER—THE USE AND ABUSE OF "COMPANION CROPS"—COMMON THEORIES THAT MAY MISLEAD

DID you ever stop to think that it takes you longer to change your seed drill from parsnips to onions than it does to sow all the onions you are likely to want? Did you ever find yourself having a couple of narrow strips of your garden ready for replanting—with a row or two of some vegetable that had not matured between, so that you could neither prepare or plant them to the best advantage? Has it ever made you feel like "cussing" on a hot June day to find you had forgotten your wrench when you had to alter the width of the hoes on your hand cultivator—and then found again, later on in the afternoon's work when you had to change them back to the original width, that the wrench was missing altogether, necessitating a half hour's fretful search? Have you ever found that you could not keep ahead of your sweet corn and string beans in the summer; and that your winter beets were so tough that the cook had to begin boiling them on wash-day to get them tender enough for the Sunday dinner?

GARDENER OR MERELY GROWER

ALL these sad conditions are the result of neglected garden duties somewhere back in February. The good "grower" is by no means always a good gardener. The good grower knows how to get big crops and to maintain the fertility of the soil. The good gardener knows not only how to do this, but how to secure a continuous supply of the things he wants, without recurrent periods of "over-production" or wasteful surpluses. And the really efficient gardener knows not only how to do both these things, but his garden is so arranged that every hour that he can spend in it tells to the best advantage; and duplication of work, and time wasted in shifting from one job to another, and in making changes in his tools, are cut down to a minimum.

REAL PLANNING VS. MAKING A PLAN

THERE is all the difference in the world between really *planning* the garden and "making a plan" for the garden. It is one thing to sit down and decide what you will have for your garden, and then make a sketch of it, covering all the things you have on your list; it is quite another to arrange, and rearrange, and then re-rerange them, until you are satisfied that the combinations and sequences are as good or better than any of the dozen other combinations which are possible. It is as complicated as a game of chess—and as interesting.

First, of course, there is the question of what to plant and how much to plant. I shall not take up much space in discussing that point because you have probably read a dozen different suggestions about how to do it, and have your own experience in addition. But just as an illustration, let us ask how many plants of early cauliflower should be set out—assuming the family to consist of five average appetites, plus a faithful cook. What is the answer? From two to four heads, according to the size, will be required for a meal; say an average of three, unless you grow them so well that you have no small ones! At the time of the year when the spring-planted crop is maturing, a head of cauliflower remains in good condition for only a few days after reaching full size. Fortunately, however, there is quite a variation in the time of heading, even among plants from the same seed started at the same time, so you can figure on having heads in good condition, from one planting, for from four to five weeks. If it is used twice a week—and that will not be too much if you are a genuine lover of cauliflower—that will make eight or ten gatherings, or about twenty-four to thirty heads, to be provided. But cauliflower is a rather uncertain crop, even under good con-

ditions, and it is hardly safe to figure on more than eighty per cent. of the planting coming through and making good heads. Three dozen, therefore, would be the amount, in round numbers, to set out. There is not space here to take up each vegetable in detail, but this will illustrate the fact that the thing can be worked out on a mathematical basis to a fair degree of accuracy, if you want to take the pains to do it. The arrangement of the different plantings for the greatest economy and efficiency is what we are emphasizing now.

WHAT ABOUT SECOND USE?

IN THE majority of gardens the most important thing to keep in mind in arranging or grouping the vegetables to be planted, is to make provision for a profitable *second use* of the space available. On a farm or a large place where the garden room is not at all limited, it may save some time and trouble to make only one planting, following each crop as it is removed with a catch or cover crop to be turned under in the fall or the following spring. In this way the soil may be kept stuffed with humus, a rotation of crops is secured, and the difficulties of garden management are reduced to a minimum. But most of us are not so fortunate, and as much of the space available as possible must be utilized at least twice to produce all the garden stuff we can profitably make use of. As ordinarily planned, each *row* of vegetables is to be followed by a row of something else as soon as it is removed.

This arrangement, however, has two distinct disadvantages. It leads the gardener into temptation by inducing him to follow a crop by a succession planting of the same thing or of something similar—such as wax beans after early string beans, or late cabbage after early cauliflower. This is always undesirable, and dangerously so if any disease or insect

pest has put in appearance. Also it leaves narrow strips of the garden, often only two or three feet in width, which cannot be used to advantage when the crops growing in them have matured, and which are in the way of planting to be done on either side of them. Plan, therefore, to arrange your various plantings in groups that will mature at approximately the same time. Whether they are planted at the same time or not is of secondary importance, as it is an easy matter, if a careful garden plan is made, to leave space for the things which must be planted later.

To illustrate: Let us suppose that in the first two weeks or so of planting this spring you expect to put in the following vegetables: Beets (plants); beets; cabbage (plants); carrots; cauliflower (plants); chard; kohlrabi; lettuce (plants); lettuce; onion (set); onions; parsley; parsnip; peas, smooth; peas, second planting; radish; salsify; spinach; turnips. They would naturally be sown and set out in about the following order:

VEGETABLE	GROUND AVAILABLE FOR SECOND PLANTING
Peas, smooth	Early June
Onions, sets	Early June
Cabbage, plants	Mid-July
Radish	Mid-May
Lettuce, plants	Early June
Beets, plants	Late June
Onions, seed	Mid-September
Beets, seed	Late July
Chard	All season
Carrots, seed	Late July
Turnips	Mid-June
Kohl-rabi	Late June
Lettuce, seed	Late June
Spinach	Late May
Parsley	All season
Parsnips	All season
Salsify	All season
Cauliflower, plants	Mid-July
Peas, second planting	Mid-June

The trouble with this arrangement, however, would develop when it came time to make the second plantings. The same vegetables could however be rearranged as follows:

VEGETABLES (IN GROUPS)	GROUND AVAILABLE FOR SECOND PLANTING
Lettuce, plants } Beets, plants } Onions, sets } Radish* } Spinach } Peas, smooth }	Mid-June.
Cabbage, plants } Cauliflower, plants } Kohl-rabi } Lettuce } Turnips } Peas, wrinkled }	Mid-July.
Beets } Carrots }	Late July.
Chard } Onions } Parsley* } Parsnip } Salsify }	Remain all, or practically all, season.

NOTE: "*" means very small quantity required. Radishes can be "interplanted" in other crops; parsley sown in seed border or out of way corner.

The advantage of this arrangement is at once apparent. The same point should be kept in mind in grouping succession plantings, and the tender vegetables, which will be put in during the succeeding few weeks, until all of the garden space available has been used.

Plants that will occupy the ground so long that a second planting of vegetables cannot be made after they are removed, should be given a block or section of the garden where they will all be together. Most of these can be followed by a winter cover crop, and the section devoted to them can be changed or "rotated" from year to year, so that each part of the garden in turn will be sure to get

a generous supply of vegetable matter which is so necessary to maintain its fertility.

THINK OF THE SUMMER WORK

A MISTAKE often made is to plan the garden for convenience in *planting*, whereas convenience in *cultivating* should be given the preference. Planting is done but once; cultivating frequently during the season. In working your garden throughout the summer you will find your efforts made much more efficient by having those things grouped together upon which the same attachments to the wheelhoe, adjusted in the same way, are to be used. Every time you have to take off the hoes and put on the hillers or the rakes, or adjust the machine for different widths of row, valuable time is lost. In a market garden, where there may be from fifty to one hundred rows of each vegetable this is a small item; but in the home garden, with only a few rows of each thing, it amounts to an astonishingly large percentage of the total time used. It is a fact that in many instances it actually takes longer to get ready for the job than it takes to do it. That is why one not infrequently sees a gardener doing work with a hand hoe which could be done much more expeditiously with a wheelhoe—but the fault is with the gardener and not with the wheelhoe.

For the same reason your rows should be as uniform in width as possible. A tool that is set to do perfect work in rows twelve inches apart will do a botchy job in rows fourteen inches apart until it has been readjusted. The width to make your rows should, of course, be determined when you are making your garden plan. I have grown acres of such vegetables as onions, carrots and beets in rows twelve inches apart, but that is too narrow under some conditions. If your soil is stony, or there is any trash or rough manure, or if it is exceptionally weedy, it would be better to give them thirteen or even fourteen inches. The same is true if your soil is very rich, and you are planning to use irrigation. As a rule, the wider the rows the more rapidly the work of hoeing and weeding can be done—but the more ground it takes for the same number of rows.

On the other hand, it is highly desirable to keep the rows close enough together so that the plants when full grown or nearly so will shade the soil as much as possible. The more thoroughly the ground can be shaded the more moisture will be conserved and the more thoroughly will the weeds be smothered until the plants are so large that cultivation has to be discontinued.

WHAT SEEDS TO SOW FIRST

IN STARTING out to sow a number of different vegetables with the seed-drill it is always an advantage to begin with the *smallest* seed. In this way much less time is lost in adjusting the machine for each change—which is a delicate matter and one requiring a great deal of care, in order not to sow too much or too little. If larger seeds follow smaller, there is no danger that the few seeds which may be left over of the kind you have just been sowing, will clog up the machine. For instance, if you sow turnips, onions, carrots, beets, and peas, in the order named, any seeds which may chance to be left in the drill—and it is often impossible to get them all out even if the machine is inverted in the attempt to do so—will quickly work through when it is adjusted for the larger seeds. If, however, the seeds left in the drill

are larger than those to be sown, they will not pass through and will more or less interrupt the flow of seed even if they do not choke the opening.

WHERE COMPANION CROPS BOTHER

THERE has been much said during recent years about "inter-cropping," "combination cropping," and "companion cropping," etc. In planning your garden, particularly if your space is limited, it is well to make use of all these schemes where needed, but the thing can be easily overdone. As a general rule it is best to plant only one thing in a place at a time. I know from long experience, that, generally, where space is limited, better results can be had by *extra close planting of the same crop* than by attempting combinations.

If, for instance, you were planning to set early cabbage and cauliflower two feet by eighteen inches apart, and inter-crop with lettuce, beets, or radish, you could save as much or more space by squeezing up the cabbage to twenty by fifteen inches and putting the other crops planted close in the space saved. The chief disadvantages of double cropping in the home garden are that one of the crops may delay the second use of the ground when others are ready to be removed; and there is likely to be much more of one of the crops than is needed. Radishes, for instance, which are frequently recommended for use in this way, should be planted in the home garden only in *very small amounts at one time*, as otherwise there will be a large percentage of waste. Multiple planting has its legitimate uses, but do not be tempted into trying it merely for the performance of a garden "stunt."

NORTH AND SOUTH VS. EAST AND WEST

THE advice is frequently given that the garden rows should run north and south, the argument being that in this way the roots of the plants are shaded during midday, and each side of the plant receives its share of sunshine. I have never been able to notice any perceptible difference. Most crops should be planted closely enough so that the soil will be shaded as the plants reach full growth. Convenience in cultivating far outweighs any other advantage. Usually it is preferable to have the rows run parallel to the shortest axis of the garden. If the garden is on a decided slope it will be easier to plant and to cultivate if the rows *run with the slope*. If the soil, however, is such that there is danger of washing, it may be better to run them at right angles to the slope, in which case the roots will help to hold the soil as soon as growth is fairly begun. A soil with plenty of humus and manure is not likely to wash badly.

MIXING CUCUMBERS AND MELONS

A *NOTHER* statement affecting the planning of the garden which I have often heard, but have never seen verified, is that the various cucurbits, such as cucumbers, melons, both musk and water, squash and citron, will, if planted anywhere near each other, spoil the flavor of all the fruits. They will mix and the seed will be useless, but the cross-pollination or hybridization will not affect the *flesh of the fruit the first season*. I have, like most other gardeners, seen insipid muskmelons growing near cucumbers!—but in a sun-shy season or heavy unsuitable soil, when they would have been the same without associating with the humble cucumber.



The foundation planting is always a hard problem because there is only half the normal earth space, and that is abnormally dry

What *Can* Grow Close to the House? STEPHEN E. HAMBLIN Author of "Book of Garden Plans"

FOUNDATION planting about the house is an every day problem and always presents certain difficulties.

The conditions cannot be of the best for plants in general, and it is mostly from the point of view of *what* will grow close to the house rather than *how* it shall be arranged that the answer must be sought. But the question of relation of foliage to the parts of the house wall has certain practical considerations that greatly influence our choice of material, as will be seen. And there is quite a difference between planning plant relations in the open lawn or garden and in the restricted areas close to the walls.

The use of vines on the walls is not now considered; we'll suppose that no vines are intended, or else they are high growing and above our near line of vision. We shall take a strip about five feet wide way round the house and see what will grow there to advantage to the site. Before any visions of a bed of flowers arise before us, let us frankly take stock of the conditions.

WHAT OF THE SOIL AND WATER?

First: The soil close to a house wall is rarely up to the standard of the lawn near by. No matter how carefully the grading is done when a house is built it usually happens that the soil put back is not what it should be, except for a few inches on the top; while on the contrary the topsoil should be unusually deep, for the foundation of the house cuts off half the root area.

Second: Little rain water falls close to the house wall for the eaves and spouts on the roof carry off the water that naturally would drip down, and only perhaps twice a year does the wind thoroughly wet a house façade with rain. After the usual summer shower the

base of the house is as dry as ever. Again, the snow and ice from the roof in winter fall heavily upon the plants below; the wear from people passing and from the wind whistling around the house puts a breaking strain upon the branches and leaves unknown in the open lawn. On the south side a higher temperature than that of the open fields holds every day, summer and winter, that the sun shines, while on the north side and under the shade of big trees close to the house no direct sunlight ever is known.

How great are the difficulties under which plants close to the house must struggle! Yet we rarely think of this when planting and we blame the plants when they look untidy and straggly. So we must plan to have every herb or shrub in its best condition all the year; in so important a place as this no failures are to be tolerated. Thus more than half of the plants of the garden are ruled out—they are not self-supporting. Many shrubs are altogether too large; they hide the windows or crowd the walk or lawn. About the usual house nothing more than six feet high should be allowed, and, except on the corners, no shrub that reaches above the window sills. Vines directly upon the walls, or shrubs trained as vines, are often the solution of the problem of foliage in narrow places without cutting out light. But now we are thinking of herbs and shrubs standing free from the house. Some plants are too small for the place; we accidentally step on them—no rock garden effects here.

Some plants are too trivial about a house wall, especially low flowering herbs as bulbs and annuals. It does not seem very appropriate for a dwelling to seem to rise like a greenhouse from a bank of flowers. It is green foliage that ties the house to the lawn, not

flowers, and this should be of a permanent character. Flowers will be just as pretty and satisfying in beds a few feet from the house and more easily cultivated.

IDEAL QUALIFICATIONS

So I plant shrubs or herbs, self-supporting, trouble-resisting kinds, that have good foliage, effective flowers when in bloom, and ability to withstand the wear from the household operations about them. Further, I like those with arching branches, an effect of reaching upward against the wall and then bending toward the lawn, an actual demonstration of the esthetic feeling of the joining of house and lawn, but not so spineless and limp in wet weather as to fall upon the walks and lawn. The largest of these should go at the corners of the building or against walls where there are no wall openings. Those under the windows should ultimately reach only to the sill; and in front of the basement windows, the piazza trellises, and small places generally where a screen is not wanted, but touches of green foliage only, there go small stiff shrubs and stout herbs whose height or spread is between one and two feet. The grass of the lawn is supposed to come right up to the base of all these and up to the house itself in many places.

When we have all these factors, practical and esthetic, in mind, we can go through the nurseryman's list and cross off nearly everything as undesirable, some perhaps from only one count, but better planted near the house instead of against it. Now what have we left?

On the sunny side, from the eastern around to the western face of the house, though nearly everything can be *made* to grow, some of the following seem to me the most appropriate for northern homes as satisfying to the eye

and enduring the conditions imposed by the nature of the site.

PLANTS FOR THE CORNERS

On the corners I would perhaps choose two or three plants of *one* of these:

Van Houtte's Spirea (*Spiraea Van Houttei*), Snowberry (*Symphoricarpos racemosus* var. *laevigatus*), Weigela (*Diervilla florida*) in any of the named sorts, Lemoine's Deutzia (*Deutzia Lemoinei*), Lemoine's Syringa (*Philadelphus Lemoinei*), and Flowering Currant (*Ribes aureum*). For herbs I select some of the very tall sorts that have strong roots and whose stems and leaves are not broken by wind, nor require stakes: Rose Mallows (*Hibiscus Moscheutos*, *H. oculiroseus*, *H. militaris*), and the new Marvel Mallows; Rosin-weeds (*Silphium terebinthinaceum*, *S. laciniatum*, *S. integrifolium*, *S. perfoliatum*), and two Sunflowers that do not spread (*Helianthus orgyalis*, *H. grosse-serratus*). If you don't mind the suckering roots the Japanese Knotweed (*Polygonum Sieboldii*) is a whole clump of shrubs in itself all summer. Such plants as these take the place of shrubs only where foliage is wanted in summer and the space is to be open in winter. In most cases all corner planting should be shrubs.

UNDER THE WINDOWS

Under the windows we put some of the smaller relatives of these shrubs: Snowgarland (*Spiraea Thunbergii*), Early Spirea (*S. arguta*), Dwarf Mock-orange (*Philadelphus microphyllus*), Pink Deutzia (*Deutzia rosea*), Coralberry (*Symphoricarpos orbiculatus*), Japanese Barberry (*Berberis Thunbergii*), or whatever other dwarf species you can get, as *B. Sieboldii*, *B. stenophylla*, *B. sinensis*, etc.; and for yellow flowers in sun *Kerria japonica* and *Hypericum aureum*. Many garden herbs may be used, but thinking of good foliage and strong stems you can consider: Peony (*Paeonia albiflora*), Gas-plant (*Dictamnus albus*), Bleeding-heart (*Dicentra spectabilis*), False Indigo (*Baptisia australis*), and the narrow foliage of all the Day-lilies (*Hemerocallis*) and such Iris as the German and Siberian.

For very low foliage in small corners choose from: Slender Deutzia (*Deutzia gracilis*),

Dwarf Bush-cranberry (*Viburnum Opulus* var. *nanum*), Dwarf Mock-orange (*Philadelphus coronarius* var. *nanus*), Dwarf Mountain Currant (*Ribes alpinum* var. *nanum*); and stiff low evergreen perennials: Woolly Yarrow (*Achillea tomentosa*), Moss-pink (*Phlox subulata*), Lavender-cotton (*Santolina Chamaecyparissus*), Rock-cress (*Arabis albida*), Scotch Pink (*Dianthus plumarius*), Snow-in-summer (*Cerastium tomentosum*), and Creeping Thyme (*Thymus Serpyllum*).

THE PROBLEM OF THE NORTH SIDE

The side with the north exposure or that greatly shaded by large trees or near-by buildings is the place of peculiar difficulty to the gardener, yet on this side is often the important approach to the house. Large shrubs are not easily grown, but we want no windows hidden; flowers will be few. Low green foliage is sufficient, and if evergreen, so much the better. I might consider the final virtues of the following as fitting the shady sides of a house.

On the corners a plant or two of Bush Box (*Buxus sempervirens*), or if this is not hardy try Shubby Evergreen Bittersweet (*Evonymus radicans* var. *vegeta*) trained to a stake and allowed to take the bush form. Of coniferous evergreens in the north for partial shade the best for this position is American Arborvitae (*Thuja occidentalis*) in its bushy forms, as var. *ericoides*, *plicata*, and *Wareana*; farther south the *Retinisporas* as *Chamaecyparis pisifera* var. *filifera*, var. *plumosa*, var. *squarrosa*, and *C. obtusa* var. *filiformis* give similar effects. Deciduous shrubs in rather deep shade are not too successful for the growth will be straggly; but try Dockmackie (*Viburnum acerifolium*), Downy Arrow-wood (*V. pubescens*) Dwarf Bush-cranberry (*V. pauciflorum*), Yellow Bush-honeysuckle (*Diervilla sessilifolia*), Gattinger's Bush-honeysuckle (*D. rivularis*), and the Variegated Weigelia (*D. hybrida* var. *Kosteriana variegata*) whose foliage is too thin to stand full sun.

WHERE WINDOWS ARE SHADED

Under the windows in shady places we may use the dwarf forms of Arborvitae (*Thuja occidentalis*) as var. *Douglasii*, var. *Wagneriana*, var. *Spaethii*, and var. *Vervaeana*, or

Chamaecyparis obtusa var. *nana*, var. *pygmaea*, var. *lycopodioides*, or others.

The best low deciduous shrub for shade in such a place as this is Trailing Snowberry (*Symphoricarpos oreophilus*) from Colorado, with all the delicacy of spray of a Maiden-hair Fern. You can get it of dealers in western plants. Use also Mountain Fly-honeysuckle (*Diervilla Lonicera*), Blue Fly-honeysuckle (*Lonicera caerulea*), or American Fly-honeysuckle (*L. ciliata*). For flowers the best branching herbs are Seal-flower (*Dicentra eximia*), White Snakeroot (*Eupatorium urticifolium*, or *ageratoides*), Lily-of-the-valley (*Convallaria majalis*), Baneberry (*Actaea alba*, and *A. spicata* var. *rubra*); for arching foliage the Giant Solomon's-seal (*Polygonatum giganteum*) and Larger Bellwort (*Uvularia grandiflora*); while for broad flat foliage the large Plantain-lilies (*Hosta plantaginea*, *H. Sieboldii*, and *H. Fortunei*). Ferns are rather out of place here, for if stepped on in summer their beauty is gone for the season; but the best wear is given by Cinnamon Fern (*Osmunda cinnamomea*), and Clayton's Interrupted Fern (*O. Claytoniana*).

REALLY DWARF PLANTS

For very low plants use Thuya Tom Thumb and Little Gem, and Dwarf Box (*Buxus sempervirens* var. *suffruticosa*), or an evergreen ground cover close to the wall of English Ivy (*Hedera helix*), Japanese Evergreen Spurge (*Pachysandra terminalis*), or Running Myrtle (*Vinca minor*). For flowers the two small Blue Plantain-lilies or Funkias (*Hosta caerulea* and *H. lancifolia*) are sure to succeed, and you may add many spring bulbs and woodland plants in small colonies; while if you wish to fuss with ferns here try those sold as *Aspidium* and *Asplenium*.

All this planting is considered as possible about a house in a small lot or when seen from close to it. For a proper setting as seen from a distance you should have groups of larger shrubs, as Lilacs, Mock-oranges, Viburnums, Hydrangeas, etc., and such small trees as Flowering Dogwood, set fifteen or more feet away from the house, allowing free passage near the walls and not cutting off light and air from the windows. This also gives room for the plants to develop naturally.



The selection of plants is to be governed by conditions. Tall shrubs are out of place in front of windows; evergreens are usually only for the northern side. The pictures here show low growing flowering shrubs in the sunny exposure with Rhododendrons on the shaded side (left)



"The hospitable garden is furnished comfortably and its care ordered to suit our every day needs. If the spiteful, knobby rustic seat must remain, it at least has a cushion and is dusted regularly"

Hospitable Gardens—ELIZABETH WHITE

THE DELIGHT OF MAKING A GARDEN THAT CAN BE ACTUALLY LIVED IN

THERE is magic in the word "garden." It is as stimulating to a real enthusiast as "rats" to a terrier. There is instant response in the consciousness; the mental scenery is shifted to an ideal setting, a sheltered spot of blended sun and shade, color and perfume, where the spirit is expanded and refreshed. The garden of my dreams has always a rose-covered wall, with a background of noble trees and mossy old brick walks. A definite limit to vision gives the restful feeling of protection so essential to the human soul in hours of relaxation.

There is no greater necessity for modern, nerve-racked life than to know the supreme peace of a garden. To be sure there are some perverted consciences who intrude worry about weeds and slugs even into the sunset hours of the garden, but I believe even they find joy in their own fashion, just as many men, who secretly appreciate a garden, take masculine pride in boasting of their lack of knowledge of the vegetable kingdom. One dear scientist friend delights to exclaim, in a truculent tone, "I know nothing whatever about vegetables," as if he almost feared their charm and was determined not to further complicate life and its affections. But it is mostly a convention, a foible, like the feminine denial of all sympathy with the insides of an automobile. Then, too, wise men are cautious; a great show of interest results in responsibility. Watering, weeding, and trimming are pleasant enough occupations occasionally done "temperamentally," following one's inclination, but they become detestable under supervision or necessity.

To be sure, it is not always the woman who gives the garden its character; but there must always be one sentimentalist and one unfeeling critic to balance a properly brought up garden.

My love and indulgence toward certain wayward spots exceeds all bounds until the critic disillusiones me, and I see with the cold eye of a passer-by that, what seemed a charming tangle, is really unkempt and disgracefully in need of pruning. Also, the critic is wary of meals served in the garden. Romance does not blind him to the

fact that the food quickly becomes cold and "things" always fall into his plate. Parenthetically, the critic is a great trial. He delights to make unsportsmanlike raids into the garden alone and unmolested to form his estimates, thus escaping a prejudiced companion who insists on admiration or sympathy and establishes false relations.

The ideal is expected of a garden. It must have no human failings and disappointments. Personally, being a sentimentalist, I prefer to visit another's garden with the gardener, rather than the owner, for it is the gardener who can move me with the story of his triumphs and failures.

In literature, gardens are so reeking with sentiment that they are only for special moods and people. Except during the unreal period of convalescence, it is only on rare oc-

casions that we have the time to assume summer girl attitudes with the omnipresent book, which is absorbed through the cover. We cannot go on all our lives gathering Roses around the sundial and being proposed to on moonlight nights, and we do have to answer uninspiring letters and make out distressing checks quite regularly. Such practical work can be done in a comfortable livable garden. So many beautiful architects' gardens have cold and unfriendly stone seats that require spartan fortitude to linger upon. Ants and spiders are generally in long, undisputed possession of the picturesque arbors, and the inviting corner of the lawn has always just been watered. Lunch or tea in the garden, a letter written on the veranda, is something to be told of boastfully, showing plainly its unusual occurrence. The Japanese sunshade is sure to blow over, and there is a visible effort, an unrestful spirit of pioneering, about the occasion. It is like the grim determination of some elaborate picnickers to have a "lovely time!"

It is not surprising that the critic prefers tea stuffily indoors, where there are sure to be matches within reach and there is no danger of being called upon suddenly to prevent a catastrophe.

The hospitable garden is furnished comfortably and its care ordered to suit our everyday needs. If the spiteful, knobby rustic seat must remain, it at least has a cushion and is dusted regularly.

The habitual use of a garden gives a flavor to humdrum days. For it is the wise ones who snatch their pleasures in passing and count less upon the great and rare occasions. It is the view caught when there is a "precious seeing in the eye," the silhouette of trees against the moon, as we sleepily turn over at night, that lingers longest in our memory. While the prosaic practical affairs of life are being carried on in a garden, there is a bountiful influence waiting to obtrude on the illusive, subconscious moment.

This influence lives always in the heart of trees. Fortunate is the person who has at least one fine shade tree to bless his garden. If you love the "green-headed people," you will always pause to render homage to



If you love the "green headed" people you will always pause to render homage to noble trees

noble trees. They offer the repose won from tempest-tossed nights and calm summer moonlight, and under the spell of their benevolence of men one feels as lacking in poise as a nervous, frivolous chipmunk. In accepting the hospitality of their peaceful shade, I want to bare my head in worship of one of the most beautiful things of life.

Many trees like the Beech and Linden, if unmolested and given breathing space, will spread into great tents, their long branches sweeping low to touch the earth. Ascent into their leafy apartments is rapturously easy. A treasure house for life has the child who has gazed long and breathlessly into the tender green world of shifting sun spots far up in one of these green fortresses, true kingdoms of imagination. Here puzzling realities dare not intrude. Oh, woodman, in your madness for trimming, spare a few such trees of mystery and childhood joy!

In contrast to these trees of lovable character are the ornamental trees one sees so frequently in parks. They are of the handsome "cloak model" variety, aloof and conscious only of their function of decoration. If you are planting trees to live with, study their characters and choose them as you would your friends. In Maeterlinck's wonderful "Blue Bird," the trees are curiously changed in their French character. We do not recognize the Willow as a dwarf and cripple because we do not mutilate them as do the French, and it is impossible to consider the Elm as plebeian. If you want an inviting garden, remember that it is the outdoor feeling combined with comfort which lures us out.

Get a fresh point of view on your problem by looking at the garden in a handglass. It may be you never before especially noticed the unsightly bald spots in the planting and the ugly back fence. If it is too windy you need a sheltering hedge or vine-covered lattice as a windbreak; if it is too sunny there should be a suitable arbor or pergola. It may be that your garden is dominated by some trees whose shade and root system discourage all efforts at flowers; so much the easier in determining the type of garden you must have. Sometimes there is comfort in one's limitations. Once a good sheltering background of greenery is established, the simple addition of comfortable chairs, tabourettes for cups, tumblers, or work, a large gay sunshade over a table, and big jars filled with branches of flowering shrubs or wild flowers, will create a hospitable



"Many trees, if unmolested and given breathing space will spread into great tents, their long branches sweeping low to touch the earth." As suggested here a sort of playhouse may be erected in the very branches

garden centre even when backed against a dump heap. From this one may build to more ambitious things—vistas, flower beds, and



"How the traveler blesses the sociable little cafes everywhere. Shady and vine covered they lure us in and invite a holiday spirit"

and the onion more respected than either.

The Europeans are clever in using every tiny breathing space. How the traveller blesses the sociable little cafes everywhere just a step from the hot dusty roads. Shady and vine covered, sometimes with small trees trimmed on top to make them spread into a leafy roof, with gravel under the chairs and tables, and perhaps a few boxes of Geraniums, they lure us in and invite a holiday spirit.

Are the educated, self-respecting American farmers' wives and village dwellers all too proud to copy their foreign sisters' method of profit? There is so little outlay necessary to start, and in these days of thirsty motorists there is every chance of success.

For the people unable to possess a garden will some kind philanthropist, eager to be relieved of the burden of his wealth, please finance a system of artistic little cafes along our main arteries? Picturesque places could be selected at proper distances from towns and they could be given into the hands of "struggling artists and architects" for individual treatment. Some one must set an example.

Already I hear the deadeningly practical critic commenting facetiously on high rents, flies and other national institutions which sap the esthetic life of our soda water fountains.

Our national nerves, however, need just such accessible, inexpensive public gardens for the wholesome entertainment of the fettered spirits of the pavement.



"If you want an inviting garden remember that it is the outdoor feeling combined with comfort which lures us out"



Making a Whole Fernery in a Single Pot

Photographed by S. LEONARD BASTIN

AS THE accompanying pictures will prove, it is quite practicable to use a good sized flower pot for the accommodation of a small collection of Ferns. The pot fernery is a welcome addition to the window garden and a variant among indoor garden ideas.

In the first place it will be necessary to secure a large pot. For the best effect this should not be less than about fifteen inches across the top. It is now needful to make a number of holes all around the pot; these should be about a couple of inches in diameter, and separated from each other by the same distance. In the pot shown herewith the holes were worked out by using an old augur bit. The job is one which any handy man could carry out.

Secure a quantity of small size Ferns and one or two larger ones for planting at the top of the pot. The soil used should be a mixture of leaf mould and loam with a little peat, if it can be secured. It is also well to add a small amount of sand to the compost. Now get a number of pieces of broken pot, and arrange these over the bottom of the large pot so that a good drainage will be secured. Next fill in with the soil up to the level of the first row of holes, and press down well so as to avoid the formation of any air holes which are so harmful to the roots. Take the small ferns, which should be of various kinds offered by the dealers for fern dishes, and place one in each of the holes, the roots of course being in-

The finished pot fernery is a welcome addition to the indoor garden and if kept well watered and lighted will flourish



Holes are bored into the side of the pot through which various ferns in small sizes are inserted tier by tier



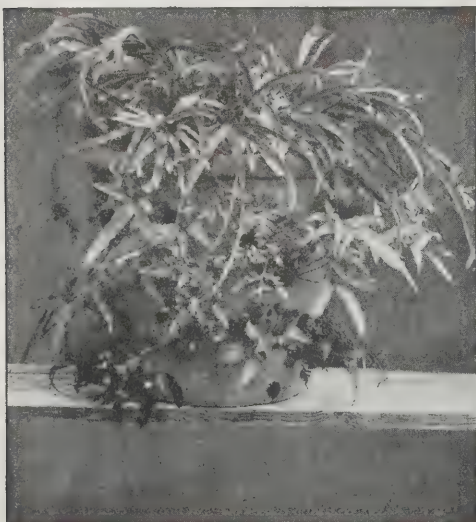
ward and the foliage on the outside of the pot. When the row of holes is planted all round the pot pour in soil, pressing well down until the new series of openings is reached. The operation of planting small ferns is then repeated, and so on until the last round of holes is reached. As a finish one or two large ferns are planted at the top in the regular way. These should preferably be of some rather tall growing kind. For instance the strong, growing Ribbon Ferns (*Pteris*) answer the purpose very well.

A position in front of a light window is desirable, and it is a good plan to turn the pot round daily so that all sides may be equally illuminated. Of course, as the ferns grow a liberal amount of water should be allowed and the plants will at all times much appreciate a good overhead sprinkling.

A few native American species will break the natural order of things and may be kept growing indoors with fairly good results. The cheerful little Polypody is always pleasant to look upon and it is astonishing how this rock-clinging species holds its own in any situation. The Spleenwort (*Asplenium platyneuron*) as an all-round fern takes prominent rank.

The secret of success in the cultivation of both is the simulation of natural environment of the root growth. Thin bits of limestone or other rock must be placed against the fern roots, and moss and earth enough added to hold them in place. This is the one imperative demand of the Ebony Spleenwort.

This shows the method of filling in the soil as each tier of holes is planted. Be sure to make each layer firm and avoid air space



After the side plants have been firmly set in place, the top is finished off by planting a fairly large sized plant of a strong growing kind



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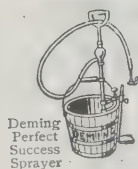
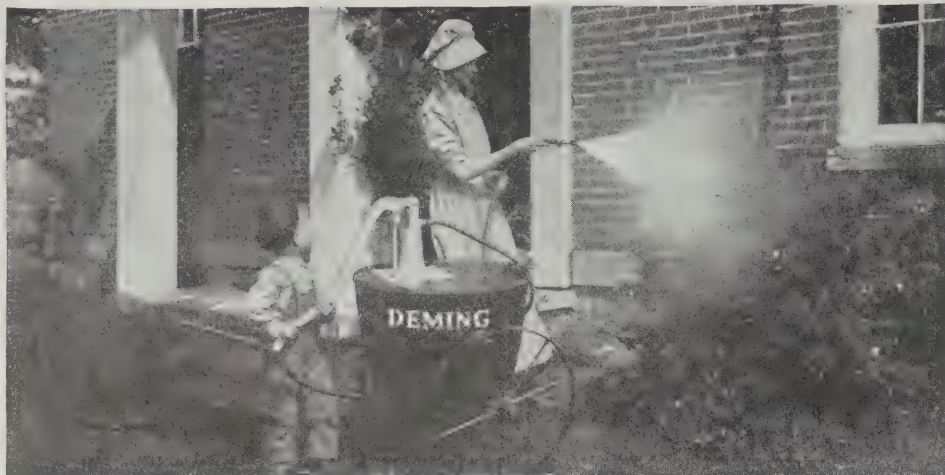
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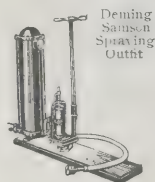


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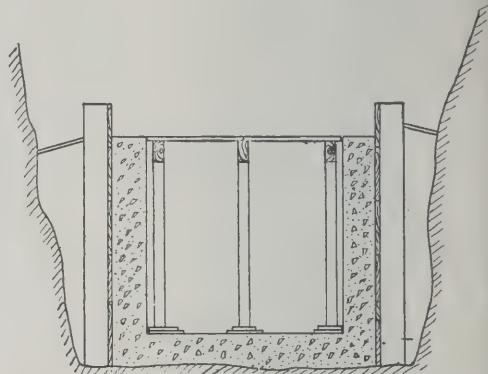
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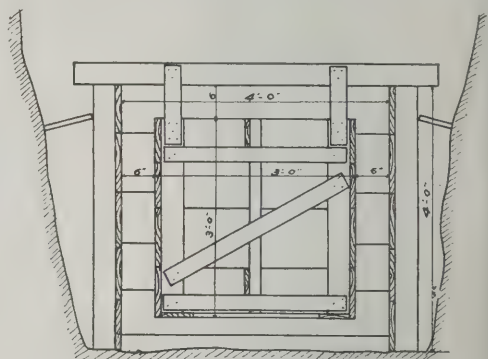
EVERY little while the progressive man who has running water in his house and a bath room runs up against the old problem of a cesspool which fails to work. At best a cesspool is an unsanitary proposition especially if it is near enough to neighboring wells to cause contamination. State boards of health are causing them to be moved when they are too near to buildings or to water courses. The



Method of building forms for the roof of the tank is shown here

septic tank is a thoroughly sanitary device which can be placed anywhere. It leaves its owner sure in the conviction that there is no chance of the pollution of well water or that in nearby streams and also keeps him secure from a visit by the state board of health which may cost him considerable money.

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For the walls and floor the forms are built as shown here; for details see text

sketch of interior arrangement. Within the tank a brick wall should be laid up far enough from the outlet end to give a little clearance between the wall and the elbow.

The tank proper should be made of concrete. But little difficulty will be experienced in making this tank and that with the forms. The two sketches show clearly the method of building the forms which should be done in two sections, that is, the forms for the floor and walls are built first and poured. Then the interior wall forms are removed and the forms for the roof built.

(Continued on page 38)

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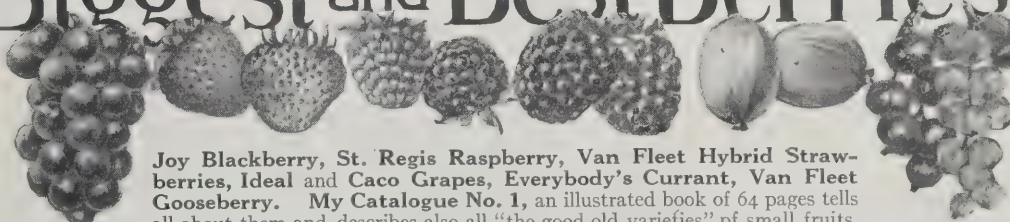
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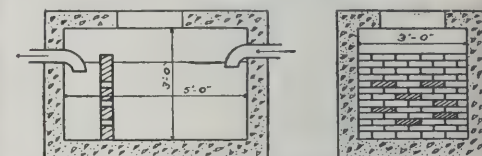
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(Continued from page 36)

To start the work an excavation must be made which shall be two feet and six inches deeper than the depth of the bottom of the outlet pipe. This hole must be at least two feet longer and two feet wider than the interior dimensions of the tank. To start the forms cut two by fours, four feet long for the studs of the outside wall form. Set these in place for the sides first and nail on the boards as shown in the sketch of wall and floor forms. Then plumb these sides and brace them to the side of the excavation. The clear distance between the boards should be made four feet. Then nail the boards for the ends of the tank on and place a two by four stud on the outside in the centre of the end form and brace it to the bank.

The work is now ready for the inside wall forms. These can best be started on the



The interior arrangements of the septic tank are shown in these longitudinal and cross sections

ground outside of the hole. Two by fours are first cut two feet and eleven inches long, three being required for each side and two for the ends. Take three of these pieces and lay on the ground so that the outside of the end ones are just five feet apart. Then nail on the boards cutting them in two at the middle and making a joint over the third two by four. This is done so that the boards will come out readily. Every board which goes inside the tank should be cut in the middle and then spliced at a stud. On the bottoms of the studs nail an inch board as shown in the sketch. These boards are to prevent the concrete forcing its way up and giving an uneven bottom to the tank.

When the two sides are ready they should be lowered into the hole. Then lay two by fours across the outside forms over the studs on the inside forms. Raise the form up by blocking until the top is just six inches lower than the outside and hang in that position by means of boards nailed to the studs and to the cross pieces. This is shown clearly in the sketch. The inside is now ready for the ends which should be built in the same manner as the sides with a splice and stud at the centre. When all are in place the studs should be braced across the interior securely as shown in the drawing.

The walls and floor are now ready for pouring with concrete. The pouring should be done by putting the concrete in the walls first and allowing to come through under the form to make the floor. For water tightness, which is essential, a mixture of one part of good Portland cement, two parts of sand and four parts of crushed stone should be used. If these materials are not readily available a natural sand and gravel mixture can be used in the proportion of one part of Portland cement to four parts of gravel. The concrete must be thoroughly mixed with sufficient water to give it quaking consistency.

The walls and floor should be allowed to set for from eighteen to twenty-four hours when the interior form can be removed. The brick curtain wall can be laid up now before the top is put on or this work can be done through the manhole after the forms are removed from the interior. This wall should be made four inches thick with openings in it. A cement and sand mortar of a one to three mixture should

(Continued on page 40)

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These new French introductions begin blooming in late September, and continue in profusion for over six weeks, thus producing a mass of flowers unknown in the later-blooming types. The flowers are very large, and of beautiful clear colors. *Normandie*. Delicate flesh-pink, shaded cream, fading to bluish-white. *Perle Chatillonnaise*. Pale creamy yellow, with deeper center. *L'Argentwillais*. Rich deep terracotta red.

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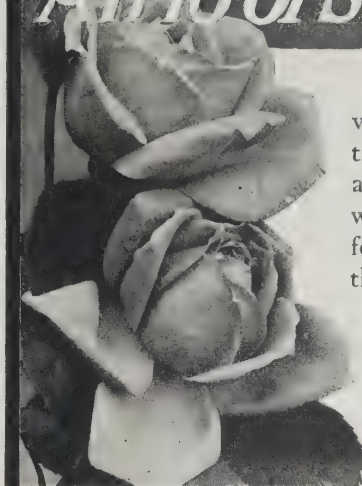
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Lady Alice Stanley. Deep coral-rose, shading to pale flesh.

Madame Leon Paine. Silvery salmon, shading from yellow to orange.

General MacArthur. Deep velvety scarlet.

Pharisaer. Rosy white, shaded salmon.

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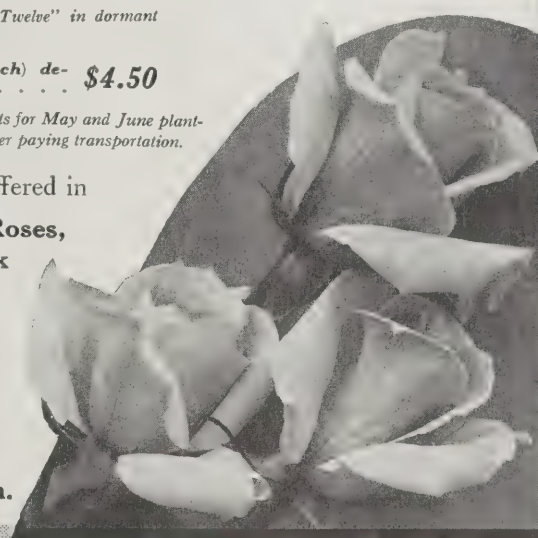
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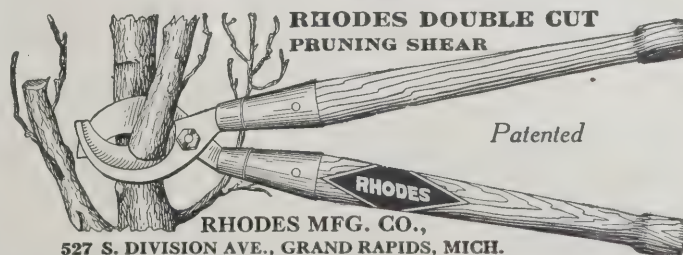
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WOULDN'T you like to cut from **your own plants** the long stemmed, dew-dipped, fragrant beauties? You can—and this year, too—if you plant S. & H. dormant plants in early spring, just as soon as the ground can be worked.

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We grow hundreds of thousands of **hardy, sturdy Rose plants** out in the broad fields, on the shores of Lake Erie, where the clay soil seems to have been made for Roses, where the summers are long and the winters tempered by the large body of water. When these plants reach your garden you can be absolutely sure that they have been grown right, packed carefully, shipped promptly, and are ready to bloom for you this year.

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contains descriptions of the desirable Hybrid Perpetuals, Hybrid Teas, Climbing and Trailing Roses—roses that are adapted to all American gardens. This is a complete garden book, listing flower and vegetable seeds, shrubs, plants, shade and fruit trees. Every reader of this magazine may have a copy—write to-day so you may plan your rose garden early.

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(Continued from page 38)

be used. The openings in the wall should not commence nearer than six inches to the floor nor go higher than within four inches of the water level when the tank is in operation.

The arrangement of the roof forms is shown in a sketch. Two by four joists are run lengthways of the tank and supported by posts also made from two by four stuff. The posts should be set on two thicknesses of inch board to make their removal easy. The joists must be spliced in the centre over a post. The boards are then laid on the joists as shown with a splice in the centre. To remove the forms and get at the interior of the tank a manhole must be provided. This is made by leaving a hole in the roof form about eighteen inches square. Build up a frame of inch boards which will be square and twenty-one inches each way. This must be braced securely on the inside. This frame is set over the hole left in the roof form. It should be toe nailed in place with nails driven from the inside of the frame.

If the tank is in a place where it is necessary to team over the top must be reinforced with iron rods or bars spaced about six inches. These can be purchased at a hardware store or may be made from old wagon tire. When the rods are laid on the form the roof is ready for pouring with concrete. A mixture of one part of Portland cement to three parts of sand to six parts of crushed stone or a one to six mixture of sand and gravel can be used. The forms for the roof can be removed in a week's time and then the manhole sealed up by a large flat stone laid on a strong cement mortar.

The action of the tank is to purify the water by oxidizing or burning up the sewage in it. The water coming out of the outlet pipe is pure. This should be led away some distance from the tank to a blind ditch having a gravel bottom. When this is done the sewage problem on the farm is solved for all time.

A tank similar to the one just described was built by the writer recently with farm labor. The cost of material used is given in the following table.

13 bags of cement @ 45 cents	\$6.95
75 bricks @ 1 1/2 cents	1.13
6 1/2" square rods 3' 6" long	.60
4 2" x 4" 8' 0" long	
2 2" x 4" 10' 0" long	
2 2" x 4" 12' 0" long	
150 feet 1" boards 220 feet @ \$20.00 per M feet	4.40
	\$13.14

In this particular instance good sand and gravel in its natural bed were near by on the farm so that there was no bill of expense for that item.

Owego, N.Y.

SIDNEY K. EASTWOOD.

Recent Books

Farm Structures. By K. J. T. EKBLAW, M. A. The Macmillan Company, New York. Illustrated; price, \$1.75 net.

A survey of the basic principles and the more important practical details involved in the design, location, construction, and equipment of typical farm buildings. An eminently successful attempt to supply the student with knowledge that will enable him "to erect his own minor structures and to differentiate between good and bad construction in larger ones."

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Ferns, in over forty hardy varieties, and such plants as Hepaticas, Bloodroot, Native Violets, Lady Slippers, Trilliums, Dogtooth Violets, Solomon's Seals, Lilies, Cardinal Flowers, etc., will produce lasting results.

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A bed of Trillium grandiflorum growing in the woodland

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GUIDANCE and assistance in the selection of plants, trees, vines, and flowering shrubs best suited to your soil and to your landscape problem; definite and accurate information as to what to plant and when and where and how; hints that will help you obtain desired results in the shortest possible time; suggestions that will save you many a failure and disappointment and—if you wish it—actual landscape service, planning, and planting.

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Our Improved Excelsior Tomato

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We used to think that a garden meant a lot of hard work. But modern invention has taken the backache and drudgery out of gardening, yet has left *all* the satisfaction—the joy of working among growing things. A few minutes' brisk exercise daily will insure an abundance of delicious vegetables for the home table.

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do the work ten times faster than the old-fashioned tools, and do it better! Will sow accurately and at even depth, cover the seed, firm the soil, cultivate, weed, ridge and level the soil, all as fast as you care to walk. Strongly-built, servicable tools—the result of 80 years' farm and factory experience. We also make a large line of cultivating, spraying and potato machinery. Write for booklet: "Gardening with Modern Tools" to-day!

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A Hot Water Hot Bed

MANY starting the usual style of hotbed find the work more of an undertaking than they anticipated, and when finished the result is often disappointing.

We raise many plants each season in cold-frames; but one year wishing to have some extra early, decided to try hotbeds, and to avoid any uncertainty that might attend the use of manure, experimented successfully with two beds, each six feet by nine feet, heated by hot water, and had little trouble in regulating the temperature, which might not have been the case with manure, the heat of which steadily declines from the start.

For a frame six by nine feet, excavate a bed running east and west, eight by eleven feet and one foot deep with level smooth bottom. Build a frame of one-inch lumber 6 ft. wide by 9 ft. long; 18 inches high one side, 2 ft. 6 in. high on the other, and sloping at ends from back to front which gives the proper incline for the sashes.

This is to be set in the excavated bed so as to leave a space of one foot all round; but before doing so cover the bottom of the bed with fine wire netting to extend three inches beyond edges of the frame when set, to exclude gophers, etc.; drive 2 rows of one inch by two inch stakes, two feet apart, and equal distances apart lengthwise with frame, and projecting five inches above ground; set stakes the narrow width across the bed.

Get any good make of large size incubator lamp and tank, and pipe enough to extend within two feet of end of frame and return at right angles two feet apart, back to tank.

Set lamp on a level foundation outside end of frame, through which cut holes, or make suitable opening for pipe, which bend if necessary, to allow it to set level on tops of stakes to which it should be secured.

Box in the lamp and space enough to work when attending to lamp, etc., and roof in any suitable way to protect against weather.

Now fill in frame and other open parts with soil to six inches above pipe, level up smooth and even, and nail or screw cross pieces on frame for sashes to rest on.

Light up the lamp, and in a few hours test the temperature of bed with sashes on, also off; use a good incubator thermometer and regulate with it and the sashes, according to weather conditions; a little experimenting will show what is needed.

A good thermostat regulator can be arranged to set over centre of bed if desired, the same as used in an incubator.

We fitted one of our beds with lengths of one and one-fourth inch pipe having one-fourth inch holes drilled alternately six inches apart on the sides for sub-irrigating.

These were placed across the bed and had one end turned up above the soil and the other closed; and were bent at right angles to return two feet apart.

Water was poured in through a funnel, also clear solutions of fertilizer, which in combination with the warmth from the hot water system formed an ideal condition for the finest kind of plant growth.

One great advantage of this bed is that it can be used either as a hot bed or cold frame at any time without change of construction. The first cost is the greatest; but as it will give good service for several seasons if properly constructed and fitted, it will be found cheaper and much more economical of time and labor than the average manure bed.

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There are, however, some things WE CANNOT DO. We cannot supply plans for garden design, nor for garden making, nor for buildings; neither can we make complete planting lists for individual purposes. We are, however, in such cases ready to give references to previously published plans and if desired to people who we think could adequately serve the inquirer, or to make general suggestions regarding garden designs or planting plans that may be submitted to us. Address all inquiries to THE GARDEN MAGAZINE Readers' Service, Garden City, Long Island, N. Y.

Transplanting Big Trees

Is it possible to transplant trees twelve to eighteen inches in diameter with a reasonable assurance of success; if so, at what season and how best is it done?—W. C., Ill.

—LARGE trees can be moved under certain conditions; it all depends on the kind of tree and the soil on which it grows. It is practically impossible to move Oaks. Elms can be moved if they are carefully looked after, while Maples are comparatively easy to move. The essentials of successful tree moving are simple. The roots must be disturbed as little as possible. In winter you can cut out the ball of soil any size you wish and then let it freeze solid when it may be drawn over the frozen ground more economically than in any other way. One great cause of failure in the moving of trees is due to the fact that not enough of the root system is taken up. As much of the root system should be moved as there is top of the tree. In fact, one can destroy the top of the tree with a greater chance of the tree living than one can destroy the roots. Trees should be removed into similar conditions; trees moved from the middle of a wood to an open lawn will not do well. The top branches of the tree should be cut back considerably in order to offset the loss of the roots. Trees that are to be moved should be root pruned from time to time so that large masses of small fibrous roots are contained in the ball about the base of the tree. Twenty-four hours before digging, a trench is opened almost on a line with the spread of the branches. This is filled with water and the inside ball is also well watered. When actual moving takes place, next day, the soil is carefully taken from all extended roots which are then carefully wrapped and watered and the tree is lifted with a large ball based on the size of the trunk—one foot of ball to each inch of trunk. The actual move is made rapidly, the tree being replanted with careful replacing and tamping of the soil. Subsequent care consists of watering and mulching liberally—a three-inch mulch is kept over the whole disturbed area for at least a year.

Starting in the Greenhouse Business

I want to start in the greenhouse business, but have but little capital and no experience.

(Continued on page 46)

The New American Rose LOS ANGELES

For All American Gardens

Pent up in the plants of this new American Rose, are two years of California sunshine, planting in your garden will release it, and you will have a glow of sunshine and gold never before beheld in a Rose.

A new color combination of superlative beauty—flame pink, toned with coral and shaded with translucent gold at base of petals.

A vigorous grower producing a succession of strong sturdy canes, every shoot crowned with magnificent flowers.

An abundant bloomer giving a profusion of large, perfect Roses from early summer to advent of winter frost.

Strong two-year-old budded plants, delivered to any part of the United States for **\$2.00**

Large or small quantities at the same price. These plants are cut back to 18 inches high, and will bloom this coming summer. Pamphlet with cultural directions with each plant.

HOWARD & SMITH, Rose Specialties

9th and Olive Streets

LOS ANGELES, CALIF.

Send 10 cents in stamps for a beautiful picture of "Los Angeles" Rose in natural colors—it tells the story

Shrubs That Will Bloom In Sun or Shade

No shrub will make its very best effort in every place you put it. Some bloom best in *full sunshine*, some in slightly *shaded places*. These two collections offer specimens for both situations, and will give blooms for a considerable part of the season.

Shrubs for Sunshine

Forsythia. Showy yellow flowers in early spring. **Barberry.** Beautiful foliage and berries. Small flowers in June. **Hydrangea paniculata grandiflora.** Great white blooms from August to October.

One plant of each, delivered anywhere, \$1.00

Two plants of each for \$1.75

Shrubs for Shady Places

Kerria. Golden yellow flowers. (You may have the single or double-flowering variety—state which you want.) **Hydrangea arborescens alba.** "Hills of Snow." Snow white flowers, all summer. **Snowberry.** Small flowers in summer, followed by berries which hang until winter.

One plant of each, delivered anywhere, \$1.25

Two plants of each for \$2.25

Baur's General Catalogue lists carefully selected shrubs, roses, evergreens, shade trees, bedding plants and bulbs for every garden or estate, with the directions needed for planting and care. Write for a copy—free.

*Baur
Floral Co*

15 East Ninth Street, Dept. A, Erie, Pa.

Strawberry Shortcake All Summer

Sounds good, doesn't it? You can enjoy shortcake from early summer until frost comes if you plant **Knight's Superb** and **Knight's Progressive** this spring. You can pick berries in a few weeks, and continue to pick until November. These two varieties are really everbearing.

Knight's "Shortcake" Collection \$4.50

200 Superb. Delicious berries from June to frost.

100 Progressive. Excellent flavor; big crops; everbearing.

100 Gibson. Flavor delicious; large. Fruits in June.

Maybe you want to grow berries for market. **Gibson** is the big money-maker; bears large crops of monstrous fruit, which commands the highest prices.

Knight's 1917 Small Fruit Book

tells how to grow Strawberries, Raspberries, Blackberries, Grapes, etc. Lists of varieties are given together with their points of excellence. Your name and address will bring a copy—write to-day.

DAVID KNIGHT & SON

Box 75, Sawyer, Mich.

Is Your Yard Part of Your Home?

DON'T you think your lawn would seem more like home if it were tastefully planted with flowers, shrubs and trees? We will gladly offer you suggestions for beautifying your grounds—absolutely free of charge. Simply write us for directions. We will send you by return mail printed forms to be filled out. Skilled landscape artists will then plan you a beautiful home and send the suggestions free. If you approve, one of our expert plantsmen will call on you personally to study your yards and discuss further details.

Sixty years of constant endeavor have so perfected our stock of fruit and flowering trees, shrubs and flowers, that we do not hesitate to guarantee you satisfaction, regardless of locality. Any size yard or ground, no matter how complicated, can easily be made a home of beauty. Simply give us a chance to prove that we can make your yard individual and attractive.

Our catalog for 1917 is full of all that is needed for orchard or lawn. It can be had by request.

HOOPES, BRO. & THOMAS CO.

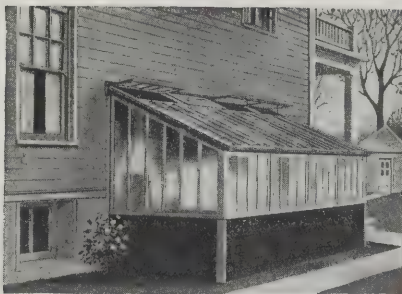
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Established 1853

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Philadelphia Office:
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You'll Get Wonderful Results from

DUO GLAZED GARDENS

Returns Two
Months Sooner by
Starting the Garden
in Early March

YOU know the possibilities of hotbeds—a chance to start growing under glass, even while the snow is on the ground. To transplant later and have blooming flowers and luscious vegetables, on your table or ready for the markets, many weeks in advance of those gardens which wait for the "safe" period of planting in the open.

Or you can start a little later with glass covered coldframes—eliminating the heat generating sub-bed of manure which is needed when the start is made in late February or early March.

In either case, you'll be most successful if you use DUO GLAZED SASH—the sash with two layers of glass and insulating air space between—the sash that, being frost-proof, needs no night coverings—the sash of greatest service because built to last and designed for easy glazing.

With a LITTLE GEM GREENHOUSE

—the luxury, heated garden frame—you can have produce and posies, the whole year through. This Duo Glazed Frame giving forty square feet of growing space, is furnished complete with heater and sub-frame at a cost of only \$49.50

A WORD ABOUT DUO GLAZED SASH

Constructed from Louisiana Red Cypress—a wood that longest defies decay. The members, joining, design, and method of putting together are the utmost effort of a big sash factory backed by the resolution to build as well as is humanly possible. The improved method of glazing is so simple, so free from complications, that you would not be satisfied with any other type, once you know Duo Glazed. They need no night coverings or shutters. The dead air space between the closely fitting glass gives not only frost-proof protection but allows the warmth from the sun to enter and be retained. In 3 ft. by 6 ft. size they cost less than \$1.84 each—in lots of two dozens (slightly less or more for other quantities). Also sold with Hotbeds and Coldframe Outfits, in Garden frames and in Greenhouses.



Easy-to-Buy DUO GLAZED GREENHOUSES

are built and shipped in sectional units painted and with glass furnished for as low as \$138 in the sunken path, 10 ft. by 12 ft. size. Lean-to types at \$90 and up according to size and style (heating systems not included at prices quoted).

Duo Glazed Greenhouses, in a wide choice of models and sizes, are splendid in appearance, strong, low in cost, easy to erect, and because of the perfect insulation afforded by the Duo Glazed Sash and by the wall construction are economical to heat and maintain.

Catalogue Upon Request

Besides accurately listing the Duo Glazed Line of Sash, Frames and Greenhouses, it tells some interesting facts about hotbed and hot-house culture—facts that may open your eyes to the remarkable possibilities for the garden lover and professional grower. Write for it to-day.

CALLAHAN DUO GLAZED SASH CO., 139 Wyandot St., Dayton, Ohio

(Continued from page 44)

How much land would I need and what kind of a house for the raising of lettuce, flowers, etc.? Wouldn't it be best to buy about three acres of land not very far from a city, with perhaps a house and barn, and build my own greenhouse?—A. W., Ohio.

—THE greenhouse business may prove a very profitable one when well managed, although it involves various business risks and the need of training and knowledge the same as any other branch of farming or, for that matter, any other business. If you like plants and flowers and feel sure that you are fitted for the business and could put into it the energy and enthusiasm that any one must put in any vocation in which he is to succeed, it would be a good one for you to take up. Your plan of buying land and building a greenhouse is all right for any one that has had practical experience and who has enough money to keep going until he is established and returns begin to come in; but for any one situated as you appear to be, it would be far better to look for work in some already successful greenhouse where the practical details of the business can be learned gradually and thoroughly. Probably one of the best things you can do is to go to your Agricultural College and talk to the Professor of Horticulture there. He can undoubtedly give you valuable advice and suggestions. Prof. White's book "Principles of Floriculture" is a book you should read carefully before proceeding further. Its price is \$1.75.

To Correctly Set a Sundial

What is the correct way to set a sundial?—C. H. M., N. Y.

—A SUNDIAL is useless as a time keeper unless the gnomon is properly pointed. This cannot be done properly by the variable compass. The best way to get the gnomon properly pointed is to obtain from an almanac the date at which the pole star will be at the meridian, and point the gnomon that night. To do this, adjust the poles in a line with the star, and sight along the north-south line of the dial and these two poles. The twelve o'clock point should be due north. The disk of the horizontal dial must always be exactly level and the gnomon perpendicular to it.

What to Use to Make a Fertilizer

What is the proper proportion of wood ashes, hydrated lime, sheep (or any other) manure, phosphate, bone meal, to use in order to have a first class fertilizer and worm destroyer for use on lawn, flower beds, and potted plants? Is powdered sulphur good?—N. C. P., Mo.

—It would be extremely unwise to make a fertilizer mixture of lime or wood ashes and any form of organic manure such as sheep manure, since such a mixture results in the wasting of much of the nitrogen. Your best plan will be to use the lime and wood ashes by themselves at the rate of perhaps 1,000 pounds per acre, working it well into the newly dug or plowed soil. Then you can add a dressing of the sheep manure, as much as 1,000 pounds per acre being safe, this to be well harrowed in. Acid phosphate, if desired, can also be applied at the same time, 500 or 600 pounds being a great plenty. Bone meal is an excellent potash and phosphoric acid fertilizer, and can be used generously in any soil or compost for indoor or outdoor work. Sulphur is not a fertilizer but is useful in fighting rusts, mildews and other fungous diseases.



Flowers all Summer For One Dollar

THERE is no flower that is so easily grown and blooms so readily as THE GLADIOLUS, and by repeated plantings, a continued bloom may be had all summer long. The long spikes are graceful and fascinating in their great array of colors; cut as first flower opens and placed in water, the flowers develop for a week, even to the last bud.

GLADIOLI require no nursing, spraying or other special attention. Once planted the bulbs take care of themselves asking no favors and making no demands, but adapt themselves to the best conditions available. Commence planting in April and repeat at 10 day intervals until the end of June, and you will have flowers until late autumn.

Vaughan's Homewood Gladioli

is a mixture carefully selected from our large Named List, grown by ourselves, and comprises the best pinks, whites, reds, and many other beautiful shades of this grand flower. We offer this mixture at the extraordinary low price of

75 Fine Bulbs, Mixed, for \$1.00

mailed free to customers within 4th Postal Zone (600 miles) from Chicago or New York. For further zones add 16 cents in stamps. "How to grow" in every package.

Secure these today; cut out this advertisement, attach a dollar bill, and mail it to us. Mark your envelope Dept. G.

Our 160 page illustrated catalogue goes FREE with your order.

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The HOME of HEATHER

ANNOUNCES ITS 1917 EDITION
OF THE

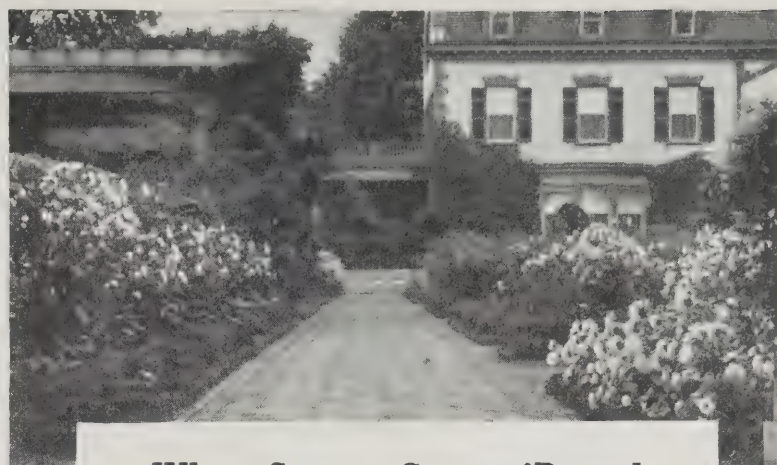
HEATHERHOME SEED AND PLANT BOOK

A MASTERPIECE OF GARDEN CATALOGUES



There are no illustrations, yet the book is as full of color as a garden in June. By word pictures alone, simple and full of meaning, it delights and informs. It will tell you just the things you have always wanted to know. 336 pages, antique paper, bound in Heatherhome blue in a box free for the asking. It is a beautiful, fascinating book and we *guarantee* your pleasure in it just as we *guarantee* to grow, and to be as described, every seed and plant that comes from the Home of Heather

KNIGHT & STRUCK CO.
PLANTSMEN ~ SEEDSMEN
258 FIFTH AVENUE
NEW YORK



When Spring Comes 'Round

you'll want your grounds to be as attractive as your next door neighbor's.

Get a Woodlawn Catalogue now and spend a cosy winter evening studying it. The handsome illustrations and helpful suggestions ought to prove of considerable value to you.

It tells how to plant and take care of vines, roses, shrubs, and trees, both fruit and ornamental. May we send you a copy free?

WOODLAWN NURSERIES

Allen L. Wood, Prop. 917 Garson Ave., Rochester, N. Y.

Gladioli of a Thousand Shades

It is not an exaggeration to say that Cowee's Gladioli have thousands of colors, shades and tints. My blooming fields literally out-shine the rainbow, but among all the wonderful sorts none surpass these

Three New Gladioli

War. Deep blood-red, shading to crimson-black. Flowers on long spikes.

Peace. The finest white. Slight lilac feathering on inferior petals. Extra large flowers.

PROSPERITY. New, and first offering. Bright rose-pink, shading to madder-lake. Large flowers, long spikes; a superb new Gladiolus.

One Bulb of Each Variety Sent to Any Address for \$3

Only two collections to a customer. Prosperity is sold in this collection only.

War, Peace, and Prosperity are illustrated and described in detail in my booklet for 1917

The Glory of the Garden

with many other well-known and desirable varieties. A copy will be sent with each order for this Special Collection—or you may have a copy free if you will send your name and address to-day.

ARTHUR COWEE—Meadowvale Farms, Box 202, Berlin, N. Y.

Don't Expect the Impossible

Roses that have been propagated in hot, moist greenhouses will naturally be full of sap and much too delicate to do well out-of-doors until they have had time to accustom themselves to changed conditions. You cannot expect to have immediate success with plants that are thus lacking in vitality and you are lucky if they withstand the first frost. But you can expect to have immediate success with

Fairfax Roses

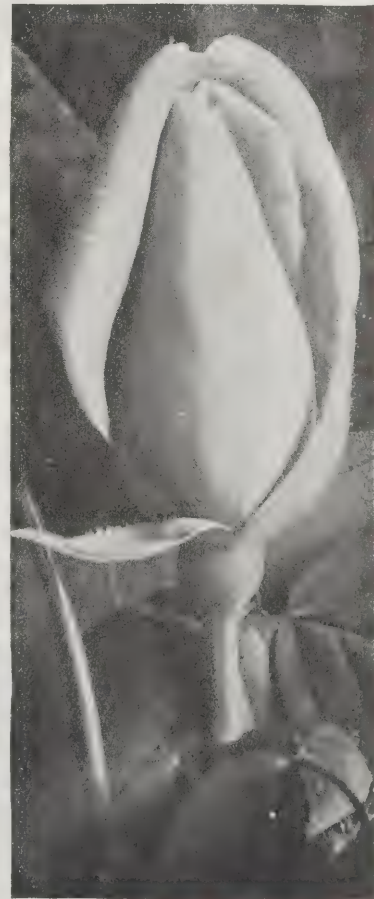
because they are grown slowly under natural conditions and wintered out of doors. They are thoroughly hardy, acclimated to snow and frost, and have tough canes and vigorous roots. They will thrive anywhere and bloom freely the first season. Planted this spring they will make a lovely rose garden for you this summer which will be a constant delight for many years to come.

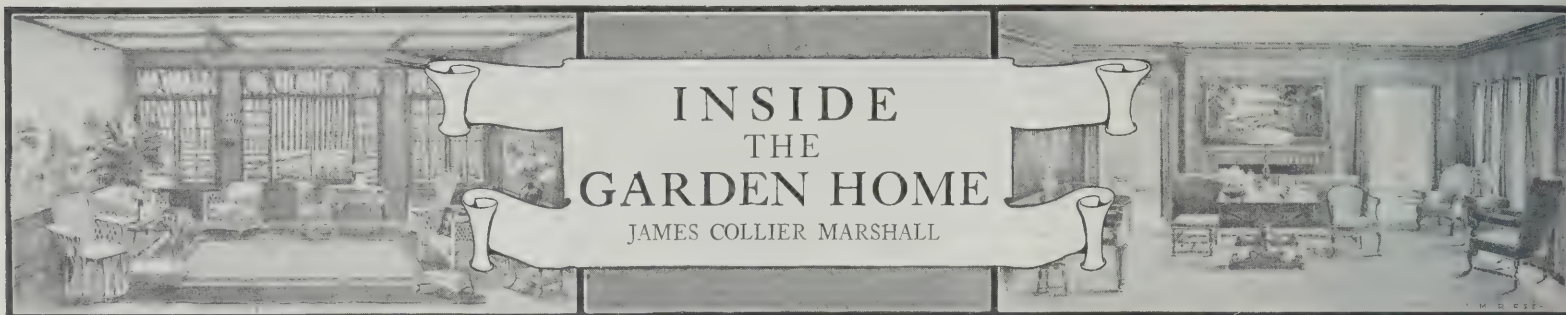
Let me send you my 1917 Rose Book—Free

It not only describes the 150 different kinds of hardy Fairfax Roses, illustrated with photographic reproductions, but it gives you careful instructions on growing roses so as to have the greatest success with them.

W. R. GRAY

Box 6, Oakton, Fairfax County, Virginia





Restoring Old Houses

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

THE person who is doing over an old house trying to restore its original atmosphere has before him one of the most difficult and, at the same time, one of the most interesting tasks that can be found in life. There is in it clairvoyance as well as strong common sense and judgment, for it is in fact a resurrection of past and gone personalities.

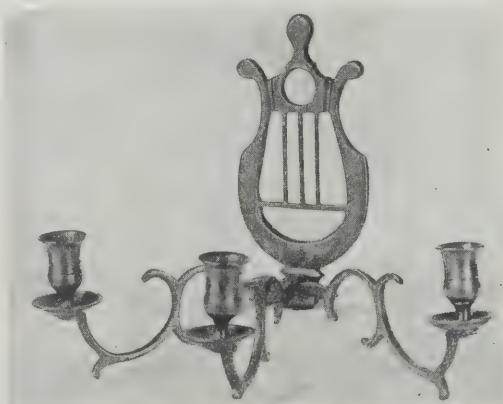
To do it successfully one must keep continually in mind the modern uses to which every article is to be put, selecting, of course, as a basis, only the necessary things, yet keeping the spirit of the olden times well in evidence. And this is difficult. It is easy enough to assemble pieces and group an effective picture, but it is another thing to establish the dignity of age with new things in an old setting.

Success in this depends on a keen understanding of which articles should look old and which new. It is as great a mistake to imagine that everything must look old, though the modern method of antiquing furnishings is satisfactory. Indeed, too much of this kind of finish is as trying as the obviously new, and the general effect is about the same.

Hence one is led to combine these types. For example, if one is furnishing a living room of the simple Georgian type, which may have a dado of wood panelling white painted like the plain wood mantel, it would be better to choose brown mahogany instead of red, since it lends itself to combinations with walnut, an arrangement that gives the impression of age and a long occupation of the house.

Good pieces in these woods require no antiquing, merely rubbing down, but if a lacquer piece is desirable, it must be antiqued and very well done at that to be in keeping with the other articles.

The wall treatment, which in a new house is usually decided upon with the architect, and presents comparatively few difficulties, is in the old house quite a problem. Seldom is the plaster either smooth or firm enough to admit scraping and painting. So paper must be used. In this case, everything depends on the taste of the restorer. Yet there is no need to go far astray on this



Does not the sconce conjure visions for you? Of brass with movable arms it will be excellent for your quaint old hall. Price, \$7.50



Every lover of china appreciates the atmosphere of Minton's. This new pattern is as rich in color as in grace and will lend great dignity to the restored dining room

point, as several American wall paper manufacturers are making to-day from authentic Colonial patterns some really beautiful papers that are not expensive.

Generally speaking, I would advise the use of the small figured, all-over designs in preference to those more bizarre ones showing the Chinese influence. Buff or warm yellow are far and away the best colors to be used with the white woodwork that is common in most old houses in this country, and they are the best background for mahogany, walnut and lacquer.

One of the best of these reproduced old papers which might well be used above a white dado has a small climbing vine of gray on a pale yellow ground, there being shadings of black and lights of gold on the vine. This charming festooned pattern gives depth to the yellow wall and exactly gains the feeling of quaintness and dignity of age. It seems unnecessary to say that such a paper needs few pictures. In fact, the effect will be better if only a few are employed.

If your mantel is worth while, and most of the old ones are, its effectiveness can be greatly enhanced by building an overmantel of wood against the chimney breast. Even though of plainest boards and molding this will form a splendid frame for any sort of decoration, either picture, glass or metal. This will be particularly good in a room with a wooden dado, and the cost will be trifling.

Curtains and hangings in a room done with the above described paper must be very simple. A fine scrim would be best for the curtains. These can be allowed to hang straight, but if the house is in the country they will be far more in keeping with the simple dignity of the furnishings if they are looped back. Or, if overhangings are employed, the scrim curtains might be hung straight with the overdraperies hanging full length, caught back either just above or just below their mid length. A striped silk will carry out the feeling in this room, as it does in most simple Georgian ones, though I do not think it should be used for portières. A solid color will be better.

The floor should be left as plain as comfort will allow.



There is much individuality in lacquer ware of whatever description. This solid bowl is very effective and sells at \$3.00. Fork and spoon, \$2.00



The stoneware stirrup cups of Colonial days find a prototype in these of Fulper pottery that is very good looking. Price, \$9.00



The clever designer of this splendid brass tray has made its very metal become a part of the pattern by allowing the brass to be the branches. Price, \$25.00

KELSEY HEALTH HEAT

IF YOU want the plain, unvarnished truth about heating systems, and the advantages of the warm air heat of the Kelsey Health Heat, then send for our Saving Sense Booklet. It shows you how you can have a leakless, noiseless, dustless, healthful heat that will ventilate while it heats.

It gives you conclusive evidence that neither wind nor weather prevents the Kelsey from satisfactorily heating every room in your house.

It proves its economy beyond any doubt. Its text is untechnical, interesting, convincing.

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Gives the essential touch to the garden and home. Send for catalogue of Artistic Flower Pots and Jars, Vases, Bird Fonts, Sun-dials, Benches and other Beautiful Pieces.

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Attract the Birds



SHARONWARE BIRD BATH

to your lawn by giving them plenty of water for bathing and drinking in a

Price, \$4.00, F. O. B. New York.

Same bowl on pedestal: total height 39 inches, \$10.00 F. O. B. N. Y. Send for descriptive price-list of window-boxes, flower-pots, jardinières, garden benches, etc.

SHARONWARE WORKSHOP, 82 Lexington Ave., New York

By the Million Gladiolus For the Million

For over 400 years Gladioli have been grown as garden flowers. Their recent rise in popularity is directly traceable to the efforts of specialists, who, some 30 years ago, started to improve the flowers by hybridizing. The modern Gladiolus is as far above the kinds that grandmother raised, as the modern Peony is above the old-fashioned "pineys."

Where the Hybridizer stops, the grower of specialties starts. I do not attempt to grow all known varieties. I rather specialize on a limited number of choicer kinds, and of these I grow a bulb product of unsurpassed blooming power.

Mrs. Francis King
A deep salmon pink



Central Gladioli Garden's Specialties

comprise 96 distinct varieties and some mixtures, all of which differ in character rather than quality and value. The following choice kinds are especially recommended:

Empress of India. A rich deep purplish red, 45 cents per dozen; \$3.00 per hundred.

Niagara. Delicate cream, blending to a canary yellow, throat is splashed with carmine. Very large flower on long spikes, 65 cents per dozen, \$5.00 per hundred.

Europa. Snowy white, without a trace of any other color. The purest white on the market to-day, 80 cents per dozen; \$6.00 per hundred.

Mrs. Frank Pendleton. Lovely flushed salmon pink with a brilliant carmine blotch on throat, presenting a vivid contrast. One of the most popular varieties. \$1.00 per dozen; \$7.50 per hundred.

Peace. Giant white with a delicate lilac feathering on the lower petals. Rich green foliage. 65 cents per dozen; \$5.00 per hundred.

Daisy Rand. Ivory white ground color, so heavily splashed with bright, rosy pink and suffused with a paler tint as to give the appearance of pink flowers. Lower petals have a patch of buff penciled with pink. Each 20 cents; per dozen \$1.75; per hundred \$12.50.

Mary Fennell. Beautiful deep lavender flowers on tall spike. Lower petals penciled with primrose yellow. This variety I recommend very highly. Each 20 cents; per dozen \$2.00; per hundred \$15.00.

Mrs. Francis King. See illustration. A deep salmon pink, almost scarlet. Per dozen 35 cents; \$2.50 per hundred.

A Very Fine Mixture. Contains some of the best varieties. Per dozen 25 cents, per hundred \$1.50.

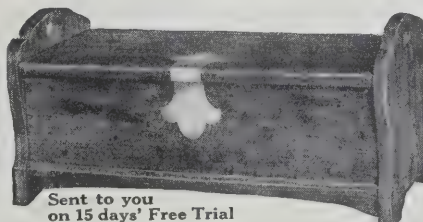
Six Bulbs at the Dozen Rate; 25 Bulbs at the Hundred Rate. All Bulbs Guaranteed True to Color and Name. Securely Packed—Postpaid

Freely Illustrated Catalogue Free

With plenty of illustrations (some in colors) it attempts to convey to you some of the beautiful surprises in store for those who plant my particular pets among Gladioli. Culture directions furnished by me will help you to be successful with the bulbs. Write for my catalogue, or better still, order some of above for either immediate or future delivery.

JELLE ROOS, Dept. C, Milton, Mass.

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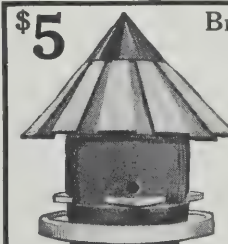
Famous Piedmont Red Cedar Chest. Your choice of 90 styles and designs. Direct from factory to home on 15 days free trial. We pay the freight. A Piedmont protects furs, woollens and plumes from moths, mice, dust and damp. Distinctly beautiful. Needed in every home. Lasts for generations. Finest wedding or birthday gift at a great saving. Write to-day for our great new catalogue and reduced prices—all prepaid FREE to you.

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\$5 For This 4-Room
Blue-Bird House

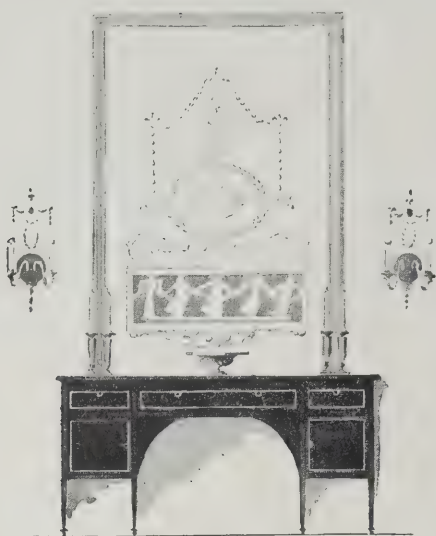
Solid Oak, Cypress Shingles, Copper Coping. Blue-birds raise 2 or 3 broods a year—but never in the same nest. They move from room to room in this 4-room Dodson House.

Bring the Blue-Birds —for Happiness

A Dodson House, built by the "man the birds love" will bring a family of these "happiness" birds to live in your yard. Mr. Dodson has spent 22 years learning how to build houses that the birds like. Bird Lodge, his beautiful home, is thronged with native birds. Wrens, blue-birds, martins, each must have a special style house. Prices range from \$1.50 to \$12. Buy now and let your houses "weather." The birds like them better.

Bird Book Free. Send for Mr. Dodson's book which tells how to win bird friends to your garden. Describes houses, bird baths, winter feeding devices, with prices. All are patented. Sent free with a beautiful bird picture in colors, worthy of framing. Write to

JOSEPH H. DODSON, of Bird Lodge
Director, American Audubon Society
101 709 Harrison Ave., Kankakee, Ill.



Would you do your dining room in lavender?

The Principles of Interior Decoration, by Frank Alvah Parsons, President of the New York School of Fine and Applied Arts, is the leading article in *The New COUNTRY LIFE* for February. Illustrated in color, this manual explains the theory of color harmony, and the other rules necessary to the successful decoration of interiors. All you need to know about interior decoration is incorporated in this article, and the principles are so clearly explained that persons of good taste will have no difficulty in applying them.

A dozen other articles follow, each of especial interest to those who live in the country.



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GARDEN CITY, N. Y.

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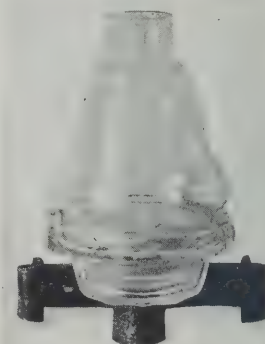
THREE OF THE
COMING MANUALS

A COLOR GUIDE TO
GARDEN MAKING
MARCH

FRUITS FOR THE
HOME ORCHARD
APRIL

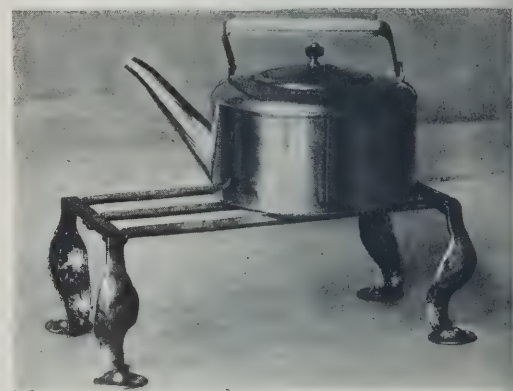
WHAT A DECORATOR
WOULD DO FOR YOUR
SUMMER HOME
MAY

Some Useful Things



THERE seems never to be in any house, however well lighted an exactly satisfactory night lamp. Only a short time ago an inquiry came to me from the mistress of a large house in the country asking me for a good night lamp—not electric—that did not have an odor. So far as I can find out, only the old fashioned candle lamps fill this requirement. So I

bought several such and sent them to her. Since I have been told they are highly satisfactory, it may be entertaining to show one of these reproductions of the quaint old wall candle lamps. As may be

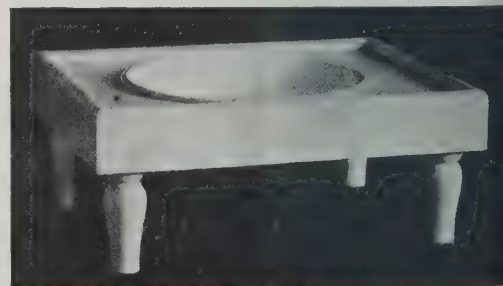


guessed, there is a thick glass knob on the bottom of the lamp that fits snugly into the iron socket, which is made in one piece to be hung or screwed to the wall. The different parts of this lamp can be easily replaced,

and this with its primitive efficiency makes it most desirable.

Nor is the iron trivet \$5.50 and fine kettle, \$12.00 shown above in any way less interesting. These simple old-fashioned articles are really very useful at the hearthside. And the sensible, generous-sized dust cloth or canton flannel

with hand pocket, comes put up in a box at 50 cents while the white enamelled dog pan, wood frame, shown here, come in several sizes, at commensurate prices.



BIRD HOUSES

Get Ready For the Song Birds. *Free Book Tells How to Attract Wrens, Bluebirds, Martins, Flickers, etc., to live in your garden.* Thousands of CHICAGO HOUSES in successful use. Get a CHICAGO HOUSE and have birds this summer. Price 80c. to \$57.50. Write to-day.

Agents wanted, write for terms

CHICAGO BIRDHOUSE COMPANY
709-11 South Leavitt Street Chicago, Illinois



Beautify Furniture

Protect Floor and Floor Coverings from injury by using

Glass Onward Sliding Furniture Shoe

in place of casters. If your dealer will not supply you write us.

ONWARD MFG. CO.
MENASHA, WIS. DEPT. T



Make your bird garden "different," with home-made houses designed by A. Neely Hall, pioneer bird-house builder. These houses cost almost nothing. Birds return to them year after year. You make your garden. Why not its bird houses? Your boy or neighbor's boy can help. A. Neely Hall's descriptive plans, used everywhere by manual-training schools, hints for a boy's factory, membership in "American Bird-House League," certificate, badge, etc., sent for 25c in coin. Catalogue for stamp.

The Put-Together Handicraft Shop

Dept. G, Elmhurst, Ill.

The Readers' Service will gladly furnish information about Retail Shops



ROSES

YOU can make your rose garden a constant source of joy from June until the killing frosts of November, with the sturdy American budded stock which I am offering this year.

It is the strongest growing, most fibrous rooted, best bloom-producing rose stock you ever had in your garden.

It is a stock so decidedly superior in quality that it will soon be preferred by all rose lovers.

It embraces all the most favored varieties. My catalogue tells an interesting story of this new rose stock.

GLADIOLI

BECAUSE of its wide range of colors, going from the softest tints to the deepest and most striking shades, combined with its easy culture and its adaptation for cutting, the modern gladiolus has become one of the most popular garden flowers. I am offering all of the best varieties in strong, well-developed American-grown bulbs teeming with life and sure in bloom promise.

My box of 25 selected bulbs of named varieties will be sent anywhere in the United States for \$1. They will convince you of the quality of my stock.

Send for my Rose and Gladioli Catalogue. It describes varieties and gives prices.

A.B. Vanderbeek
Roses and Bulbs
72 Broadway Paterson, N. J.

"A Little Book About Roses"

A real catalogue—and more—of real roses

1917 edition ready February 1st

Mailed
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George H. Peterson
Rose and Peony Specialist Box 50
Fair Lawn, N. J.

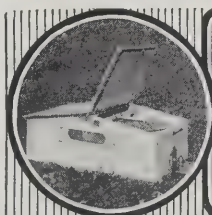
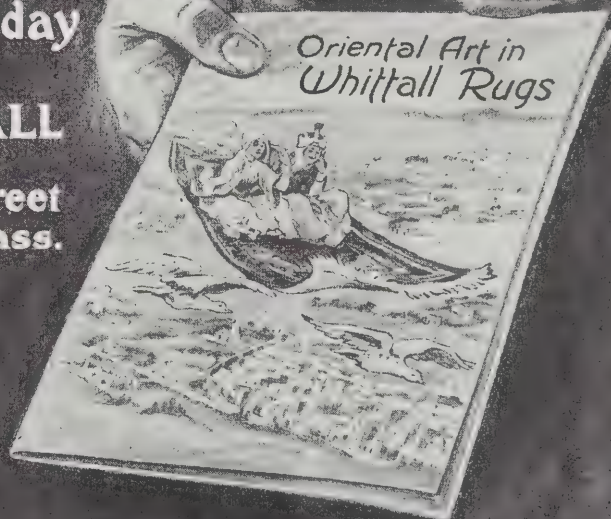
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in true colors
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in the world and
tells you what
it has taken me
years to learn
about

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Brooder for 50 to 100 chicks



No. 3 Poultry House for 60 hens—2 units



Setting Coop

HODGSON PORTABLE HOUSES

The various models of these houses are arranged after the most scientific methods of raising poultry. Years of experience have proved this. The brooder can be operated outdoors in zero weather. The poultry house is made in sections that can be quickly bolted together by anyone. The setting coop keeps a hen by herself while setting. All neatly painted. Send for illustrated catalogue.

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PPROMPT action in equipping your hot beds and cold frames with Sunlight Sash will mean much larger profits at marketing time.

At least that's the experience of thousands of successful gardeners all over the country who use it as standard equipment.

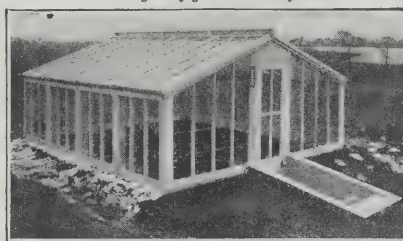


Two layers of glass enclosing an air space form a transparent blanket which lets in all the sunshine and retains the warmth. Growing plants are thus expedited—not forced—and bring fancy early-season prices. Figuring time and expense eliminated by doing away with mats and shutters, profits are easily doubled.

Plants grown under Sunlight Sash are pronounced "far superior" to any grown under single sash. "Good again as the others," says Mr. J. H.



Two layers of glass instead of one



McCormick of New Philadelphia, O. "Early in the field and early in the market."

Write to-day for helpful catalogue and the present low prices. Immediate shipment.

SUNLIGHT DOUBLE GLASS SASH CO.
927 E. Broadway Louisville, Ky.



Protecting Trees Against Animals

IAM a firm believer in protecting trees from the attacks of animals. Why? Experience! Some years ago when I had charge of the trial grounds of the U. S. Department of Agriculture, at Washington, the War Department turned in a miscellaneous collection of 450 mules, as it had a perfect right to do, the land belonging to that department. The mules not only browsed all the grass and ed-

weeds to the roots, but peeled the bark off about 100 Carolina poplars as high as they could stand on their hind legs and reach. All but half a dozen or so of those trees died. These few eked out a miserable existence merely because the mules could not reach all the bark, so the narrow strips were left to carry sap from the leaves down to the roots. But it was a living death for them.

In a large orchard of young trees I have been observing for several years rabbits and mules have girdled about 10 per cent. of the trees, and

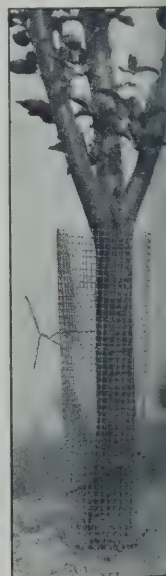


The chain holds the horse while he makes a meal off the tree

though several have recovered, it was because the injuries were slight or because they were bridge grafted. I know of an orchard in western New York where fully 40 per cent. of the trees have been bridge grafted because the owner did not know of the risk he ran.

It astonishes me to see the injuries done to street trees left without protection or even left so the horses of delivery wagons, doctors and other callers, can help themselves to the bark and even the wood. Just notice how this sort of injury is encouraged by placing the chains on trees as shown above.

Trees should never be used for hitching posts. They cost too much and are too easily injured. Concrete or iron or wood, while they may seem to be costly, are cheaper in reality for they can be replaced in a few minutes, but trees require years to grow. Street



Properly applied mesh protector. Plenty of room for the tree to grow

(Continued on p. 54)

American Fence

Woven with a mechanically hinged joint. Big, full gauge wires—full weight—full length rolls. Superior quality galvanizing—proof against hardest weather conditions.

American Steel Fence Posts last a lifetime. Hold fence secure against all conditions.

Dealers Everywhere

AMERICAN STEEL & WIRE COMPANY
Chicago New York Pittsburgh Cleveland Denver
Awarded Grand Prize at Panama Pacific International Exposition
The Supreme Award of Merit

The Readers' Service will give you suggestions for planting



"A Welcome to Fairyland"

EXTRAVAGANT? Yes—but nevertheless more than one enthusiast has used the word "fairyland" to describe a garden adorned with

Mathews GARDEN CRAFT

HAVE you a sheltered nook in the shrubbery that invites a cosy bench, a knoll that should be crowned with a Rose Grotto, a vista that deserves a frame of arching cypress?

THE smallest garden, as well as the most spacious of estates, needs the deft contrast wrought by the addition of a bench and table copied from some inn yard of Merrie England or a trellis and grotto accurately reproduced from a dainty French original.

EVERY garden lover will discover some appealing suggestion in the hundred or more photographs contained in the Mathews Garden Craft Book—72 pages of garden furniture and adornments fashioned of ageproof woods. It is gladly sent on receipt of eighteen cents in stamps or coin.

Below is the Mathews Hallmark—a pledge of painstaking craftsmanship, and a guarantee of authenticity of design whether from English, French, Japanese or other influence.

The Mathews Mfg. Co., *Craftsmen and Designers*
915 Williamson Bldg., Cleveland, Ohio

Stewart's Gates and Fences For Garden Homes

are designed to properly reflect the spirit of the home and its surroundings. We make a large number of designs accepted as standards for certain purposes. But the correct interpretation of your individual ideas as to how your home grounds should be guarded affords us the chances to employ that creative craftsmanship which has earned the title of

"Standard of the World"

for Stewart's Gates and Fences. Because the *first* impression is usually a lasting one, we endeavor to create *correct* impressions by building fence in harmony with the home. To be tasteful and impressive, fence and gates need not be expensive. This is *the one big factor* to be considered when buying Stewart's Gates and Fences; they are permanent, hence economical. Write for free catalogue to-day and become acquainted with appropriate fence and gate designs for your purpose.

THE STEWART IRON WORKS COMPANY
655 Stewart Block Cincinnati, Ohio



Your 1917 Dahlia Garden

will delight you more if some of the wonderful new *Decorative Dahlias* are included. Of intermediate form between the Show and Cactus type, they surprise with their vivid colors and perfectly shaped blooms, while their long blooming period makes them especially valuable as cut flowers.

Sorts That Lead

All the following are of surpassing beauty and size. All thrive in any soil and their richly colored flowers are supported by long, stiff stems.

Colosse de Lyon. Large, well-formed flowers of old rose with rich golden-salmon tints, shading to crimson pink at tips. \$1 each.

Guillaume de St. Victor. Of pale mauve rose, beautiful flowers on long stems. \$1 each.

Hortulanus Fieb. Of colossal proportions, with blooms over eight inches in diameter. Of delicate shrimp-pink color, tips slightly tinted with gold. 50c. each.

Maman Rozain. Immense but graceful flowers carried on long, stiff stems. Outer petals of deep velvety purple color, with white edges, centre

petals pearl-white, striped with purple, with rose tints at base. 50c. each.

Joffre. A remarkable novelty with very large flowers of light rose, shaded deeper in centre. \$1.50 each.

Le Grand Manitou. White, striped violet red. Sometimes bears flowers of solid color. 25c. each.

Monsieur Lenormand. Very large but of fine form and graceful. Soft yellow, striped red, points of petals tipped white. A glorious sort. 50c. each.

Mammoth. Exceptionally large, brilliant vermillion, with darker shading. 50c. each.

Securely Packed Safe Arrival Guaranteed

These are just a few of hundreds of kinds which I grow in the different classes. Many splendid sorts at 10c., 15c., and 25c. each. Every bulb guaranteed true-to-name. Write for handy price list, or, better still, send for some of above TO-DAY.

Mrs. H. A. Tate *Dahlia Grower and Importer*
Old Fort - - - North Carolina



Beautify and Protect Your Grounds

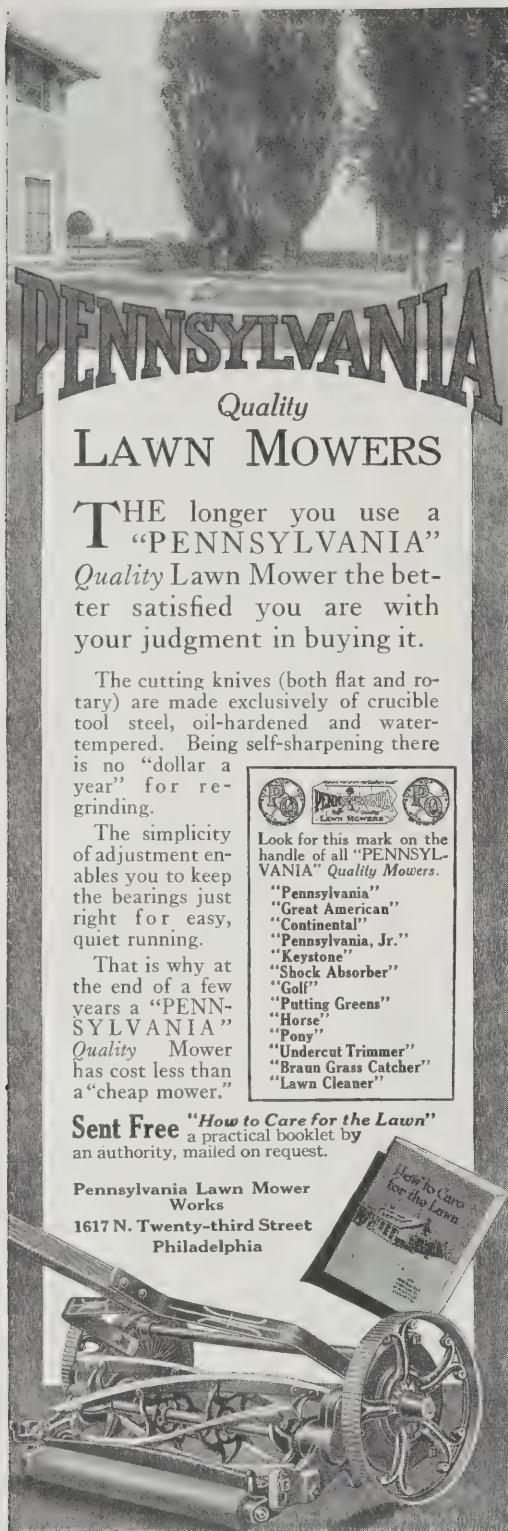
This picture shows the simplicity, sturdiness and good appearance of the Excelsior Rust Proof Fence. Gives protection to the lawn, shrubbery, flowers, etc., yet permits complete view from any point. is made of heavy wires, dip-galvanized AFTER making. Wires are held firmly at every intersection by our patented steel clamps. The heavy coating of pure zinc makes the whole fence rust proof and exceedingly long wearing.



Ask your hardware dealer about Excelsior Rust Proof Flower Bed Guards, Trellis Arches, Tree Guards, etc.

Catalogue B sent upon request.

WRIGHT WIRE COMPANY, Worcester, Mass.



PENNSYLVANIA

Quality
LAWN MOWERS

THE longer you use a "PENNSYLVANIA" Quality Lawn Mower the better satisfied you are with your judgment in buying it.

The cutting knives (both flat and rotary) are made exclusively of crucible tool steel, oil-hardened and water-tempered. Being self-sharpening there is no "dollar a year" for re-grinding.

The simplicity of adjustment enables you to keep the bearings just right for easy, quiet running.

That is why at the end of a few years a "PENNSYLVANIA" Quality Mower has cost less than a "cheap mower."

Look for this mark on the handle of all "PENNSYLVANIA" Quality Mowers.

- "Pennsylvania"
- "Great American"
- "Continental"
- "Pennsylvania, Jr."
- "Keystone"
- "Shock Absorber"
- "Golf"
- "Putting Greens"
- "Horse"
- "Pony"
- "Undercut Trimmer"
- "Braun Grass Catcher"
- "Lawn Cleaner"

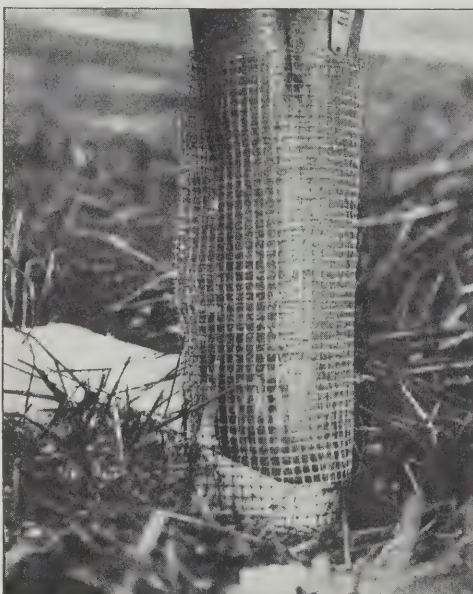
Sent Free "How to Care for the Lawn" a practical booklet by an authority, mailed on request.

Pennsylvania Lawn Mower Works
1617 N. Twenty-third Street
Philadelphia

(Concluded from page 52)

trees should have guards placed around them, something substantial, something that will prevent horses from getting at the bark.

As to orchard trees, I have tried splints such as are used for making wooden baskets, lath, wired or tied on with binder twine, tarred paper and building paper, all these are fairly good—better than nothing—but they decay, or break down, or for some other reason have to be replaced in one to three years. The guard that pleases me best is made of galvanized hardware cloth of one-half or three-fourths inch mesh, the former preferred where mice are troublesome, the latter where rabbits are abundant. The height of such a protector should vary with the kind of animal to be fenced out—six or eight inches might be high enough where only mice are to be kept out; but where rabbits are numerous and large, the guards will have to be at least eighteen inches above ground and even more where snow is likely to be deep or to drift. I generally have



In spite of protection, mice have girdled the tree. The wire had a hole beneath it and the mulch encouraged the mice

mine extend two or three inches below ground and twenty-one or twenty-two inches above, at least where six to eight inches of snow may fall and remain during the winter.

It is a good policy to make the protectors at least six inches in diameter when finished. This will require that the cloth be cut in 20-inch widths so the ends may be bent and locked rather than fastened by wire as shown in illustration. When the trees have grown so they nearly fill the cylinders of wire cloth, the locks should be opened so there will be no danger of girdling the trees. With apple trees this may be expected to be necessary about the sixth year. After the trees get enough bark they will be fairly safe from rabbit attack, but mice may still do damage. To prevent this it is a wise policy to keep all grass and rubbish out of the orchard so there will be no winter harbors or nesting material for the little animals to hide under. I have known apple trees as thick as my body to be seriously gnawed at the ground surface where straw had been placed around them for a mulch. In the tree here shown not only had straw been placed around the tree, but the wire guard had been left with an opening beneath it. The white patch shows part of the injury which mice wrought.

M. G. KAINS.

A New Way of Watering Your Garden

Turn on the water; point the sprays in the extreme side position; then your part is done. Go away and forget about it.

The line of spray will gradually travel across the garden, watering it thoroughly and evenly. No beating down of plants. No packing of soil. When watering is done, automatically shuts off. It turns itself and stops itself.

Made with hand turner, as well as the automatic.

For full particulars about this Skinner System troubleless, botherless kind of watering, send for booklet.

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SYSTEM
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DAHLIAS Novelties Only

The rare Dahlias listed in my catalogue are the choicest novelties of the ten leading European specialists. They will win admiration in your garden and carry the highest honors against greatest odds wherever exhibited. They really represent the aristocracy of all the latest and best in Dahlias.

Prices, 25 cents to \$10.00 each
Catalogue on request

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Paterson, N. J.

Pulverized Sheep Manure Best for Lawns and Gardens

Nature's Own Plant Food. For all crops. Especially good for lawns, gardens, etc., where quick and certain results are necessary. Used extensively for small fruits, shrubbery, etc. Rich in nitrogen, phosphoric acid and potash; also adds humus.

Sheep's Head Sheep Manure

guaranteed absolutely clean—nothing but sheep manure free from weed seeds, which are killed by heat. Dried and pulverized for easy application 200 lbs. delivered anywhere east of the Missouri River for \$4.00, cash with order. 200 lbs., enough for lawn and garden, delivered for \$4.

Natural Guano Co. 808 River St. Aurora, Ill.





A Better Lawn At Less Expense

THE Fuller & Johnson Motor Lawn Mower is designed for the large lawn with numerous flower beds, trees, etc., where great flexibility as well as large cutting capacity is required.

This wonderful Mower is large enough to cut five acres a day yet light enough not to mar the turf, and so extremely flexible that it will cut close up to and around trees, under shrubbery and along walks and driveways thus entirely eliminating the necessity for cleaning up afterwards with a hand mower. The

FULLER & JOHNSON MOTOR LAWN MOWER

is scientifically designed and built as a complete unit. Indeed its balance and the details of the mechanical features of the mower have received as close consideration as has the motor itself. If it were possible to dismember this wonderful Motor Lawn Mower before you, you would marvel at the extraordinary thought and study given to the planning of its smallest feature—the infinite care used in the finishing and adjusting of its smallest part—yet its greatest characteristic is simplicity.

Write us now before Spring arrives for full information and a copy of "A BETTER LAWN".

Manufacturers Distributing Co.

432 Publicity Bldg.

St. Louis, Mo.

\$225

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designed
for use in
Private
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PLANT the right kind and grow them in the right way. Allen's illustrated Book of Berries describes all the best varieties and tells how to grow them profitably for home use and local market, also for distant shipping. A complete guide—this 1917 Book of Berries. Send for it to-day—free.

The W. F. Allen Co.
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Meehan Service—personal, individual service—superior because it is the result of sixty years of cumulative experience—is at your command.

No matter whether your home grounds are large or limited in area—write us, question us freely. Your letter will be assigned to and answered by an expert plantsman, who has studied your section, knows its climatic and soil conditions, and will give you practical and helpful suggestions accordingly. This preliminary advice is offered you without charge and without obligation.

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For the ordinary city or suburban lot, or for places up to one acre, we have devised a "New Property Data Form," on which you can easily give us the information necessary to an intelligent consideration of your needs. When you write, ask for this form.

The Landscape Department

Members of our professional staff are now planning their visiting routes for the next three months. One

of them will soon be in your vicinity. If you will write us at once and say it will be agreeable, it is likely that he can arrange, without expense to you, to call on you while in your vicinity, inspect your property and talk the matter over with you in person. In this connection, we offer a service of special interest to those whose grounds need periodical attention. Our visiting Plantsman will, if desired, prepare a written report covering his recommendations in detail; perhaps take data for plan work; set stakes for incidental plantings or the reconstruction of a walk or drive, or arrange for the execution of any other landscape improvement contemplated. Because our business is countrywide, the cost of this sort of high grade professional service is brought to a minimum through distribution of expense over several visits in the same locality. It is always more than covered by the saving in avoiding mistakes and consequent loss of time and money.

THOUSANDS OF CHARMING HOMES

all over the country owe their beautiful setting of Trees, Shrubs and Hardy Flowering Plants to Meehan service and Meehan stock. This is planning time! Planting time will be here before you realize it. Better write us at once—TO-DAY. Let us send you our unique Hand-Book of Trees, Shrubs and Hardy Flowering Plants for 1917. It is FREE.

THOMAS MEEHAN & SONS

Box 17, Germantown

Philadelphia, Pa.

Gladiolus Bulbs

obtainable in this country

My handsome and instructive catalogue "The Gladiolus" will be sent free upon request.

MARY LOUISE HAWKINS
LANCASTER, MASSACHUSETTS

Rhododendrons—Hybrids

Rhododendron Maximum
(The Natives)

Kalmia Latifolia (Mt. Laurel)

Send list of wants for prices.

For other trees and plants send for catalogue.

MORRIS NURSERY COMPANY
949 Broadway New York, N. Y.

If You Would Have England's Wonderful Gardens Plant Sutton's Seeds

YOU know there was a time, years ago, when travelers returning from England, filled with the charm of her wonderful gardens, thought it was impossible to have like results in America. Happily for you, the facts are exactly to the contrary. Surely, nowhere, for example, are there lovelier gardens than at Lenox and Tuxedo.

Gardens filled with the choicest things; the unusual things; such as are the continual pride of their possessors. In these gardens, Sutton's Seeds are used extensively. The one below at Lenox, Mass., is a delightful instance.

Aside from the wonders of Sutton's Ray Asters, Phlox, Giant Antirrhinum of gold medal fame; this year's catalogue contains the usual number of interesting new things. Every one has been painstakingly tested and abundantly proven its merits.

No seeds, so it is commonly acknowledged, are tested quite so vigorously as Sutton's.

That is why they are uniformly dependable.

Send 35 cents for Garden Guide. With \$5 purchase of seeds, the 35cts. will be promptly refunded.

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Royal Seed Establishment
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Seeds*

*The
HARDY*

BORDER

Raising Perennials from Seed

SOMETHING has been said in another place in this month's magazine about certain kinds of perennials that will flower quickly from seed sown within the next few weeks (see page 18). The actual method of handling the young plants is told here:

The seeds may either be sown in shallow boxes (flats), put in a hotbed or in the soil which is placed over the manure in the hotbed, the former plan being preferable for as soon as the seedlings are large enough they may be transplanted into other boxes which are replaced in the same bed until it is time to remove them to a cold frame, or set out in the open. The seed boxes, or flats, may be made out of old boxes which can be procured from the grocery store and should be three to four inches deep, fifteen or eighteen inches wide and long. Place half an inch or so of drainage material, broken pots, or cinders in the bottom, then an inch of fairly good soil, not too fine, then fill up with compost made as follows: Sift the best soil at your disposal through a very fine sieve and mix two parts of this with one part each of fine leaf mould and of sand. Fill the boxes so that when pressed firm the surface will come to within half an inch of the top. Water with a fine rose, using the tepid water.

Sow the seed thinly in rows two inches apart, covering the finest seeds very lightly, or only pressing them into the soil. Large seeds should be covered with compost to a thickness equal to their diameter. Label each variety correctly as it is sown. It will greatly facilitate rapid germination if each box is covered with a sheet of glass, and some experienced growers cover the frames entirely with burlap or mats until the first of the seedlings appear. This obviates any necessity for watering at this stage and all seeds germinate much quicker in darkness.

Every morning during bright sunny days the sashes should be opened slightly for fifteen minutes or so for ventilation. In the course of a few days some of the seedlings will begin to appear, when the boxes containing these must be brought together in one part of the frame and be exposed freely to the light, otherwise they would quickly become spindly and weak. It will be necessary, however, to shade them slightly when the sun is bright, covering the frames securely again each night with mats. When watering is necessary do it in the morning and always use a fine rose can and let the water be tepid.

When the seedlings have formed their first true leaf, transplant two to three inches apart in other boxes, and after watering return again to the frame, shading them from bright sunlight until they are rooting freely.

Millions of Trees PLANTS, VINES, ROSES, ETC.

The oldest, largest and most complete nursery in Michigan. Send for catalogue. Prices reasonable

I. E. ILGENFRITZ' SONS CO.
THE MONROE NURSERY MONROE, MICHIGAN

START RIGHT

by Planting

Sullivan's Standard Products

Trees, shrubs, vines, plants, also garden implements of the highest possible quality, at the lowest possible price. Send for catalogue.

SULLIVAN SEED CO., P. O. Box 84, W. Somerville, Mass.

"STRAWBERRY PLANTS THAT GROW"

"PROGRESSIVE" Best of the Fall-Bearers, also Standard June Sorts including Wonderful New Seedling "COLLINS," and a full line of other Small-Fruit Plants.

Our 1917 Catalogue describes all these and tells how you may get a year's Subscription to Garden Magazine Free.

C. E. WHITTEN'S NURSERIES

Box 10, Bridgman, Michigan

Verna Thompson

A Beauty Among Paeony-Flowered Dahlias

A beauty in shape, a beauty in color—a lovely white, heavily shaded cerise. And the size is immense, large enough to satisfy even those looking for the unusual. The very deep, full flowers are bound to win many new friends for this charming class of Dahlias which has proved irresistible to Dahlia enthusiasts everywhere.

Strong Bulbs—guaranteed true-to-name and sure to grow if properly handled and set out, at \$3 each delivered at your door.

These five leaders really lead: All Entirely new Introductions!

Bull Moose—A magnificent new hybrid Cactus Dahlia, pinkish yellow, shading canary yellow toward center. Blooms freely, flowers large, long stems. Each \$5.

Betty Dukane—A superb Paeony-Flowered sort. Velvety carmine and crimson, streaked and splashed with yellow from base to center of petals. Each \$3.

Lady Claire—An entirely new and charming Decorative Dahlia. Light scarlet, tipped and veined yellow. Each \$5.

Mt. Shasta—A light, shell-pink Hybrid Cactus of simply wonderful shape, size and color. Each \$5.

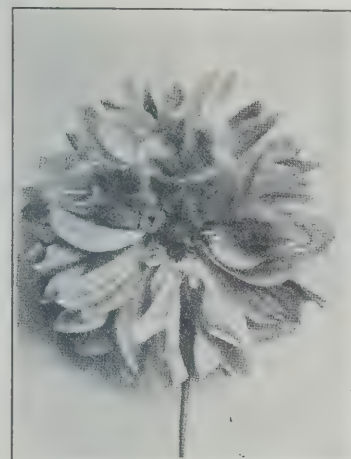
Lady Helen—A dull-rose Decorative Dahlia of rarely beautiful form and coloring. Each \$5.

Four of above are illustrated on page 18 of my free catalogue the other one on back cover

Pointers on Growing Dahlias Free

Supplying the choicest of all Dahlias is only half my business. The other half is to help you make those Dahlias grow and bloom. My free catalogue, abounds with helpful suggestions, besides being a complete manual on Dahlia classification. Let it help you make your 1917 Dahlia garden prettier and brighter than ever. Write to-day.

GEORGE L. STILLMAN, *Dahlia Specialist*, Box C-7, Westerly, R. I.



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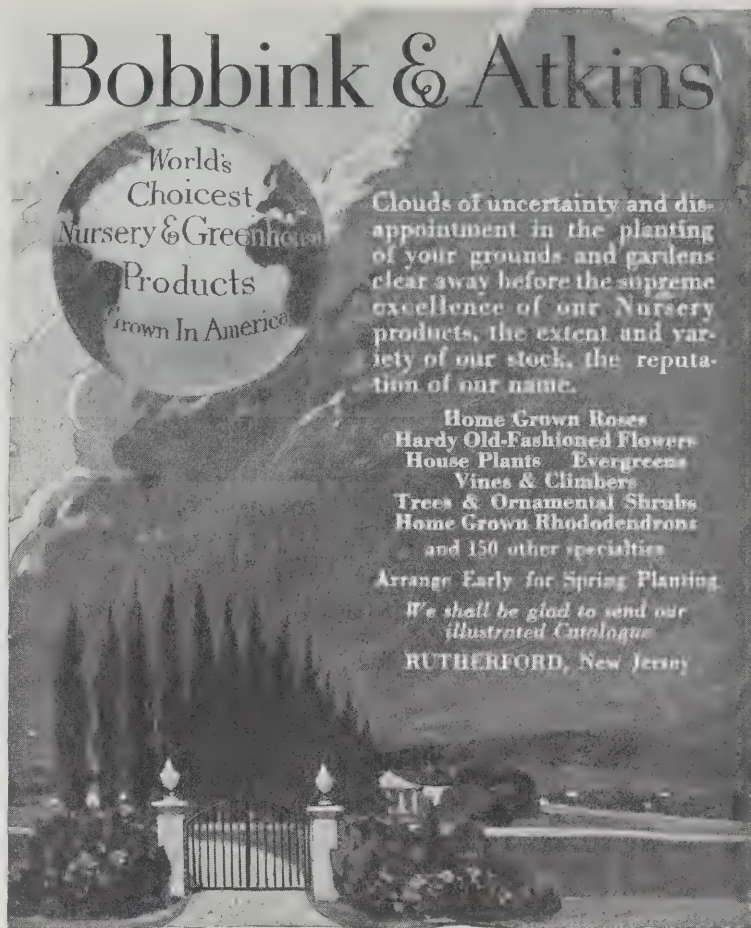
Clouds of uncertainty and disappointment in the planting of your grounds and gardens clear away before the supreme excellence of our Nursery products, the extent and variety of our stock, the reputation of our name.

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House Plants Evergreens
Vines & Climbers
Trees & Ornamental Shrubs
Home Grown Rhododendrons
and 150 other specialties

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When you think of Chrysanthemums, think of Smith's!

Here, at Adrian, Michigan, we maintain one of the most unique horticultural workshops in America, perhaps in the world. With us, just one class of plants rules supreme—the Queen of Autumn, the stately 'Mums! Please learn to think of us as growers of

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Over a quarter century ago we decided that these were well worth-while our special efforts. The results have been gratifying. We are the acknowledged originators of most American novelties of merit.

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Owes its name to President Wilson. A magnificent yellow, supremely fitted to play a big part in your garden plans. Strong, healthy plants, sure to bloom in October, 40c. each; \$3 for 10; \$25 for 100. 5 at the 10 and 25 at the 100 rate. Delivery on or before May 15th as desired.

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TAKOMA LAWN PLANT FOOD

Lawn Grass Requires More Fertile Soil
than any Other Crop

Takoma Odorless Plant Foods

PREPARED ESPECIALLY FOR SUBURBAN NEEDS

Concentrated—Scientifically Correct—Efficient—Economical—Odorless

LAWN PLANT FOOD

10 lbs. enough for 1,000 square feet	\$1.00
25 lbs. " " 2,500 " "	1.75
50 lbs. " " 5,000 " "	2.75
100-200 lbs. at 4½ cents per pound	
200-500 lbs. " 4 " "	
500-1,000 lbs. " 3½ " "	
1,000 lbs. or more " 3¼ " "	

GARDEN PLANT FOOD

10 lbs. enough for 400 square feet	\$1.10
25 lbs. " " 1,000 " "	2.00
50 lbs. " " 2,000 " "	3.25
100-200 lbs. at 5½ cents per pound	
200-500 lbs. " 5 " "	
500-1,000 lbs. " 4½ " "	
1,000 lbs. or more " 4¼ " "	

Above Prices F. O. B. Cars Washington. Delivered Prices on Application

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ODORLESS PLANT FOOD COMPANY

Takoma Park
WASHINGTON, D. C.

Send for Instructive Book: "The Maintenance of Lawns and Golf Courses."

To Have Good Vegetables and Flowers

It is not sufficient to merely plant the seed in order to obtain perfect specimens like those illustrated in the seed catalogues.



Big Reduction in Land Clearing Costs

The recent land clearing tests conducted by the University of Wisconsin have revolutionized methods and established conclusively much lower clearing costs per acre.

These tests covered the use of stump pullers and farm powder separately and in combination.

The leading kinds of stump pullers—hand and power—were represented. The dynamite used was



Red Cross Farm Powder

These tests proved the following important facts:

1st—The cheaper Red Cross Farm Powders will in most soils blast out stumps as well as the more expensive 30% and 40% grades.

2nd—The combined use of Red Cross Farm Powder and a stump puller is often the cheapest and best way to clear land.

3rd—Properly placed charges fired with a blasting machine greatly reduce the amount, strength and cost of the dynamite required.

4th—Present high cost of dynamite is more than offset by the improved methods developed by the University's Demonstration.

As a result the average farmer can now clear his stump covered land at less cost per acre than before the war.

Write Now for Full Information

Every farmer with stump covered land should know the full facts about this modern method of land clearing. Write to-day for

Land Clearing Bulletin No. 523

If you are interested in orchard planting, ditching, drainage, boulder blasting, subsoiling or post hole blasting be sure to ask for

Hand Book of Explosives No. 523

E. I. du Pont de Nemours & Co.
Wilmington Delaware

As the weather improves transfer the boxes to cold frames, giving air freely during the day to harden them for planting in the border, according to weather conditions and locality. The plants may be set in their permanent quarters during April and May.

Another method of raising perennials from seed is to sow directly in the hotbed. Four inches of fine soil prepared as above should cover the manure, into which the seed may be sown in drills three or four inches apart. The seedlings are, however, much more conveniently handled in boxes.

Failing the convenience of greenhouse, hotbed or frames, a sunny window in a warm room may be used, or the seed sown in finely prepared soil in the open as early in spring as the ground can be worked into condition.

PREPARING THE BORDER

I am a firm believer in fall preparation of the soil for spring planting, digging the ground deeply and thoroughly manuring, leaving the top soil rough. When this is done the ground dries out quickly in spring and permits planting or sowing perhaps two or three weeks earlier than when the ground is left untouched until spring.

If the border is not now ready, however, get at it as early as possible, but do not attempt to cultivate if the soil is wet. This applies specially to heavy soils. As the plants are being set out permanently—for it may be three or four years ere they require lifting and dividing—the soil must be made quite rich. Use stable or farmyard manure freely, also leaf mould (humus); and coarse bone meal at the rate of two ounces per square yard might also be incorporated while digging; the humus being specially desirable in very heavy, stiff soils.

In planting use five to eight plants of a kind, setting them in irregular bays, and at distances from each other as advised in the tables accompanying the article on page 18.

When making new perennial borders, it should be borne in mind that a fairly wide border, that will allow for tall subjects at the back and space to gradually taper down to the front with plants of intermediate height, is much more effective than a narrow border. An ideal border for this purpose should be at least nine to twelve feet wide.

GEO. W. KERR.



Bugle (*Ajuga reptans*) a valuable dwarf perennial for carpeting in shade, spreads rapidly, and flowers freely. Flowers blue; Var. *rubra* has dark purple leaves

Diamond Brand Gladiolus

are far-famed for their certainty to bloom. Contented in even poor soil, they produce magnificent spikes of those glorious flowers that delight gladioli growers everywhere. To further popularize "Diamond Brand" Gladiolus we will mail

35 Bulbs in Unrivalled Color Mixture for only \$1 Postpaid

Satisfaction guaranteed or money back. The collection contains some beautiful new hybrids, as well as many of the favorites among popular kinds. Six collections for \$5., sent to six different addresses, if desired. Write for booklet, "Treasures of Bulb Land" to-day.

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Fully describes the products of this 1200 acre nursery, fruit and seed farm. Every plant and tree is backed by over 25 years' experience in growing and propagating the heaviest bearing strains of strawberries, raspberries, currants, gooseberries, blackberries, dewberries, grapes and all kinds of fruit trees. Also garden plants such as horseradish, asparagus, rhubarb and field seeds. Do not buy until you see our prices. We supply growers everywhere and our stock is the best of its kind. Send for free beautiful catalog to-day. A fine currant bush sent free for names and addresses of five fruit growers.

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By Thirty New York Experts

A unique symposium of some thirty odd chapters dealing with every branch of the real estate business.

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Guaranteed to Grow and Bloom This Year



Thrifty, sturdy plants well supplied with their own roots, ready to grow and bloom profusely till snow flies. Your money back if they fail.

10 Strong Plants, Sure to Please Send For These

Killarney, sea shell pink; Antoine Revoire, rosy flesh; Bessie Brown, creamy white; F. R. Patzer, pink, light orange shading; Etolle de Lyon, sulphur yellow; Helen Good, delicate yellow; Dean Hole, intense salmon; Clothilde Sonpert, best of all bedders; Earlate, dark red; Champion of the World, pink.

SPECIAL COLLECTION OFFER

6 Carnations, all colors 25c.	6 Chrysanthemums 25c.
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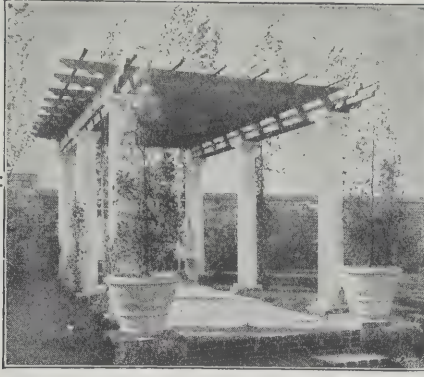
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Illustrates wonderful "Dingee Roses" in natural colors. It's more than a catalog—it's the lifetime experience of the *Oldest and Leading Rose Growers in America*. A practical work on rose and flower culture for the amateur. Describes over 1000 varieties of roses and other flowers and tells how to grow them. Edition limited.

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70 Greenhouses

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Keeps your garbage out of sight in the ground, away from stray dogs, cats, and typhoid fly. Also saves pounding of frozen garbage.

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For Artistic Landscape Effect

You should have a plan of your grounds by an experienced Landscape Architect showing exactly how to lay out and plant them. **PLANS COST LESS THAN MISTAKES** and may be made by mail. Estimates free.

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Wizard Brand Manure makes things grow. It is just what your lawn, flowers, vegetables, fruit and field crops need. Every piece of land needs replenishing from time to time. Wizard Brand Manure is more than just fertilizer—it strengthens soil fertility and supplies plant food at the same time. Call for Wizard Brand Manure by name to-day or write us for descriptive booklet.

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If You Guess

The Cost of Spraying
your orchard, it is impossible to show you that "SCALECIDE" is cheaper than Lime-Sulfur.

If You Know

we can prove to you conclusively (no matter how large or small) that "SCALECIDE" is not only cheaper and easier to apply, but is more effective in controlling Scale, Pear Psylla, Leaf Roller, Bud Moth, Casebearer; also fungus, such as Canker and Collar Rot that no other spray will control.

Write us the number and age of your trees; the number of gallons and cost of Lime-Sulfur you use and the cost of labor to apply it, and we will tell you what it will cost to use "SCALECIDE." Number 13 Booklet free. Address Dept. I.

B. G. PRATT CO.
Manufacturing Chemists
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Totty's 'Mums

If you need any Chrysanthemums for your garden,—you may as well have the best!

If records at Exhibitions count for anything we can show that we have taken more prizes than all the other growers put together.

Our World-Wide organization, looking for just the best varieties raised in the different countries, gives us a unique advantage.

Our Hardy sorts are suitable for all conditions and sections, and well worthy of your investigation.

We will send in the spring, at the proper time to plant in the garden:

25 Chrysanthemum Plants

Assorted Hardy Types that will be satisfactory in your section; including Singles, Pompon, and large-flowering types; delivered prepaid to any address in the country for **\$5.**

Catalogue

describing over 300 varieties in Single; Pompon; Japanese and Early Flowering types—also my latest introduction—The Tuxedo Collection of Japanese Anemone 'Mums'; will be mailed on receipt of your address.

Charles H. Totty

"The Novelty Man"

Madison New Jersey



COMING EVENTS CLUB & SOCIETY NEWS



Meetings, etc. in February

(Following dates are meetings unless otherwise specified)

1. Marshfield, Mass., Garden Club.
2. Pasadena, Cal., Horticultural Society.
3. Massachusetts Horticultural Society, Boston, Mass.: lecture.
5. New Bedford, Mass., Horticultural Society.
6. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Myers Park, Charlotte, N. C.
7. Short Hills, N. J., Garden Club.
9. Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
- Connecticut Horticultural Society, Hartford, Conn.
10. Dobbs Ferry, N. Y., Horticultural Society.
- Massachusetts Horticultural Society, Boston, Mass.: lecture.
12. Park Garden Club, Flushing, L. I.
- Garden Club of New Rochelle, N. Y.
- Rochester, N. Y., Florists' Association.
- New York Florists' Club, New York City.
14. Short Hills, N. J., Garden Club.
- New York Federation of Horticultural Societies and Floral Clubs, Ithaca, N. Y.
- Lenox, Mass., Horticultural Society.
- Nassau Co. Horticultural Society, Glen Cove, L. I.
15. Marshfield, Mass., Garden Club.
16. Pasadena, Cal., Horticultural Society.
17. Massachusetts Horticultural Society, Boston, Mass.: lecture.
20. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Myers Park, Charlotte, N. C.
21. Short Hills, N. J., Garden Club.
- Rhode Island Horticultural Society, Providence, R. I.
- Tarrytown, N. Y., Horticultural Society.
23. Connecticut Horticultural Society, Hartford, Conn.
24. Dobbs Ferry, N. Y., Horticultural Society.
- Massachusetts Horticultural Society, Boston, Mass.: lecture.
26. Park Garden Club, Flushing, L. I.
28. Short Hills, N. J., Garden Club.

Great Programme at Ithaca

THE Department of Floriculture at Cornell University has arranged an interesting programme in the horticultural section for "Farmers' Week," February 12th to 17th.

On Tuesday, February 13th, at 9 o'clock, Miss L. A. Minns will speak on "Some Books Every Garden Lover Should Own." At 10 A. M. Mr. E. C. Volz will discuss "Methods for Prolonging the Keeping Qualities of Cut Flowers," and he will be followed at 11 A. M. by Mr. C. L. Thayer on "Hardy Lilies."

On Wednesday the New York State Federation of Horticultural Societies and Floral Clubs will hold a meeting at Ithaca and the following programme will be presented: At 9 A. M. "Roses in Greenhouses and Their Breeding" will be discussed by Professor E. A. White; at 10 A. M. Professor David Lumsden will speak on "Orchids and Orchid Breeding." The Department of Landscape Art has arranged for a lecture at 11 A. M. by Mr. Henry Hicks of Westbury, Long Island, on "Making Home Grounds Attractive." The afternoon programme will consist of a discussion of "Garden Roses and Their Culture," by Dr. A. C. Beal, and "Diseases of Roses" by Dr. L. M. Massey.

On Thursday at 9 o'clock Dr. R. Matheson will speak on "Insects Which Attack House Plants, and Their Control." At 10 o'clock Professor David Lumsden will discuss "The Value and Management of Amateur Flower Exhibitions." At 11 o'clock Dr. A. C. Beal will speak on "Outdoor Sweet Pea Culture." The afternoon will be devoted to a lecture and demonstration of Flower Arrangement by Professor E. A. White, followed by a round table on questions relating to flower growing.

On Friday at 9 A. M. Professor Lumsden will discuss "The Home Flower Garden and its Care." At 10 A. M. Mr. E. C. Volz will speak on "Native Plants for the Home Flower Garden." At 11 A. M. Miss L. A. Minns will speak on "Bulbs for Indoor Planting," fol-

lowed at 12 o'clock by Mr. C. L. Thayer on "Bulbs for Outdoor Planting." In the afternoon there will be a demonstration on various phases of plant work, such as the making of window boxes and baskets, pruning, bulb planting, propagation by cuttings and seeds, etc.

American Rose Society

APPLICATION for the registration of a new rose is made by Mr. John H. Dunlop, Richmond Hill, Ontario, as follows:

"Mrs. Henry Winnett" Parentage—Russell x Shawyer. Color—Bright Red about shade of Richmond. Large full flower, solid color, foliage ample. Deliciously fragrant, combining keeping qualities of Russell with the freedom of Shawyer. Form good, petals well reflexed and of solid texture.

The Ever-changing Poppy

WE HAVE in our yard an old pit which I caved in several years ago. Since then we have been filling it in with ashes from the furnace. One day late in May, I decided to strew some mixed poppy seed on it, never imagining that they would do more than come up a few inches and hide the unsightly spot. To my surprise, on July 14th several poppies bloomed. From that day until August 31st, the old pit was a thing of beauty, indeed, covered by from forty to fifty blooms daily of wonderful variety.

By actual measurement many of the plants were more than four feet tall; and the blooms on one plant measured from 4½ inches to 10 inches in diameter! That plant had a single bloom of an exquisite crimson with white lacey frilled edge, and a pink centre. Every day there were new shades, shapes, and sizes.

There was a pink with white frilled edge and white centre; also some very double feathery, huge ones, of crimson, lavender, pure white, and magenta. This variety looked more like the huge fluffy chrysanthemums we see in greenhouses. Then there were single poppies, with contrasting colors on edge and leaf; some dark red ones had a black "maltese cross" in centre, edged with white.

Heretofore, we have sown our seed the first of August, and they have come up and bloomed the following spring; but by the end of June, the poppies are usually all over. We have never had such healthy fine plants as these we planted in May.

Virginia

EVELINA DUNBAR.

A Large Leaf

I HAVE been interested in the article on big trees in THE GARDEN MAGAZINE for November. Is a Sycamore leaf 18 by 15 inches, exclusive of stem, worth talking about? I have one of this size, picked in October from a young tree some ten feet in height.

Buffalo, N. Y.

F. A.

Cultivating Vacant Lots

WHERE can I get information regarding associations which have taken up the problem of the cultivation of the vacant lot?

Ottawa, Can.

W. E. HARPER.

Send For This FREE SEED ANNUAL

IT'S the best Annual we've ever issued. Complete—and yet concise and to the point. Full of "lifelike" illustrations. Hundreds of helpful, handsome, handy pages. A postal and it's yours—absolutely free. We especially feature Vegetable Seeds, Farm Seeds, Clovers and Grass Seeds, Flower Seeds, Bulbs, Gladiolus, Dahlias, Roses, Perennial Plants, Bedding Plants, Hedges, Fruit Trees, Fertilizers, Spraying Implements, Lawn Mowers and Poultry Supplies.

Here Are Some of Our Specials

Golden Dawn Sweet Corn

Medium early variety—unsurpassed for sweetness and flavor. Stalks 5 to 5½ feet high—ears of good size and usually well filled to extreme end. (Another popular sweet corn is Granite State—for which we have had many calls.)

Paris Golden Celery

Self-blanching—extremely early variety—compact, straight, vigorous, rich golden yellow stalks. Seed carefully tested for purity.

Danvers Yellow Globe Onions

Uniform—heaviest cropper and best keeper. True Buxton type, early, very thick bulb, flat or slightly convex bottom, full oval top, small neck, rich brownish yellow skin.

Crosby's Improved Egyptian Beets

Early variety, has small top, excellent form and small tap root. Great improvement over old variety of Egyptian Beet. True to shape and color. Improved by the late Josiah Crosby of Arlington, Mass.

Lawn Seed

Franklin Park Lawn Seed—made from re-cleaned seeds—formula of Park Commissioners of Boston. Starts at once if ground is in proper shape. Free from weeds, contains no chaff.

Asters

We offer you only the choicest varieties and most select strains. You'll really be interested in reading about them in our instructive Annual

Dahlias

A whole host of new varieties—an extraordinary array of colors—and a delight to every lover of beautiful flowers. See our annual for complete descriptions.

Begonias

Single-flowering and double-flowering. Also single-fringed Begonias—beautiful giant blooms with elegantly fringed edges. Rather new—limited quantity.



For free delivery system see our catalogue

FOTTLER, FISKE, RAWSON CO., Faneuil Hall Square, Boston, Mass.

Herbaceous Spiraeas

such as shown below growing in our nurseries will grow in your garden. Because we value them highly as most beautiful and dependable hardy plants, we have gradually acquired the

Most Complete Collection in this country

The following new sorts produce masses of three foot flower spikes throughout the summer:

Ceres—Beautiful light rose.

Juno—Rich rosy violet.

Rose Perle—White, overlaid with a delicate silvery sheen.

Silver White—Very graceful.

Venus—A fine deep rose; tall, branching spikes.

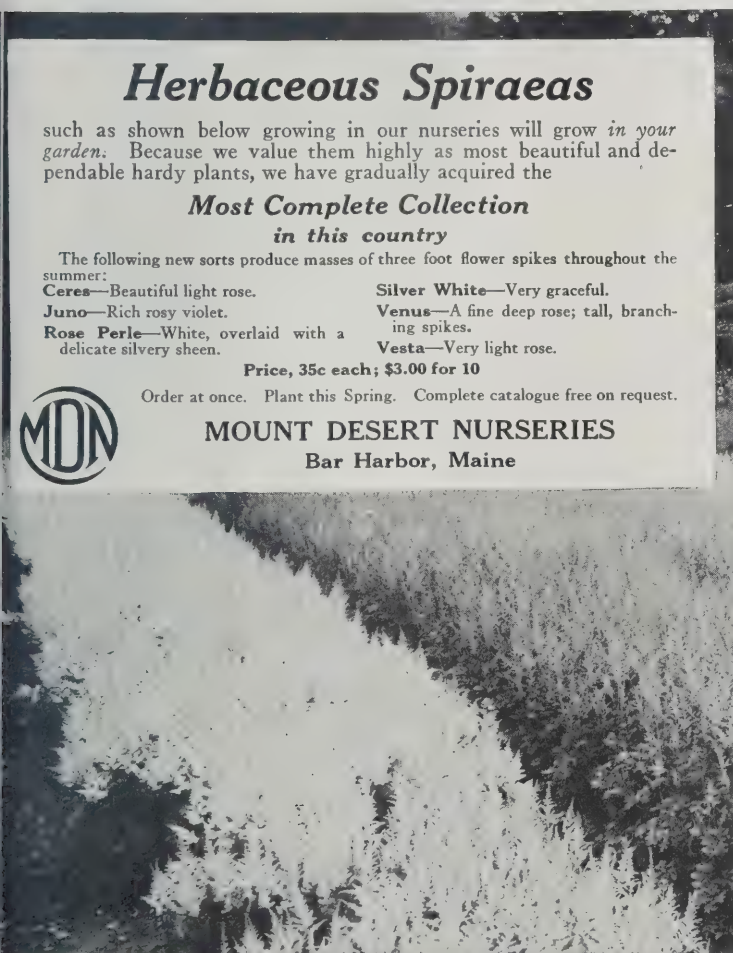
Vesta—Very light rose.

Price, 35c each; \$3.00 for 10

Order at once. Plant this Spring. Complete catalogue free on request.

MOUNT DESERT NURSERIES

Bar Harbor, Maine



FREE—Write to-day for our new catalogue entitled

The World's Best Dahlias



Accurately describing all the best new and standard varieties in Cactus, Decorative, Giant Flowering, Show, Fancy, Pompon, Paeony, Duplex, Collarette, Anemone, Century and Single. Natural color reproductions of new Decoratives, "Dr. Tyrrell" and "Minnie Burgle" and 38 beautiful half-tone illustrations of the distinct types. The leading Dahlia catalogue with the 1917 novelties.

PEACOCK DAHLIA FARMS, Berlin, New Jersey

Giant Gladiolus

You have all often read of Giant Gladiolus with flowers 7 inches or more across, and spikes from 5 to 8 feet tall.



"Kunderd's Ruffled Gladiolus"

While not all varieties can be grown to very great size, it is nevertheless surprising to what extent many kinds can be developed by following certain special forcing cultural methods. In our 1917 catalogue we have given special cultural instructions, such as are not often available to the general public, and which if carefully followed will give surprising results.

We will gladly send you a free copy of our 40-page catalogue for a postal card request, and we don't want you to feel the least obligated on that account to give us any order whatever. Address

A. E. KUNDERD
Goshen Ind., U. S. A.

What I Did with a City Lot and a 2-Family House

AMONG the scores of typical city lot garden schemes I have seen I do not recall one dealing with a space as small as the one I will attempt to describe, having only 25 x 32 feet at the rear for lawn (used to dry clothes for two families) and garden. The only advantage this lot has over some others of same size is in it's being an end lot with southern exposure and vacant lots to the south, with a strong possibility of houses being built facing that way which will leave this space to the south, although some other person's yard, open for all time.

There is a Privet hedge from front to rear on south side. There is no hedge between the house and the one next door on north side, there being a ten foot space between, seeded with grass and a shrub here and there in a most informal manner.

The space between the two yards is divided by a Lilac hedge. In the middle of this space is a bird house or rather three houses built with three inverted flower pots, with the hole enlarged in each and the pots fastened to a cross board at the top of a twelve foot pole, which is covered with a Honeysuckle vine. There are also narrow cross pieces for the birds to perch on.

I have growing, in a flourishing manner, on this 25 x 32 foot space: 1 peach tree—bearing two years; 4 rhubarb plants; 1 small pear tree; 3 grape vines—on a trellis, erected on edge of lawn and over the path leaning against the house—giving shade from the hot afternoon western sun.

Rose garden—on south side with 1 dozen bushes and a border of silver leaf at the edge.

Bed of annuals at north side, sometimes of Zinnias or Asters, with a border of Columbine which comes up every year and Golden Glow and Peonies at either end. Same space has been used for strawberries one year from which about 20 quarts were obtained.

Under the grape vines, I intend to plant a few currant bushes, by training vines to fruit high (top of arbor rather than at side).

Another bed between the path and the house, only 4 x 15, my two small boys have taken possession of as their garden. This may have too much shade when the grape vines overhead are more fully grown.

Outside the Privet hedge in the vacant lot, I have growing in great profusion Hollyhocks, which come up every year and reach a height of 12 to 14 feet as if bent on being seen from the yard. They are a mass of gorgeous color and make a beautiful background to the whole. This is one way of beautifying vacant land and also keeps it from being used as a dumping ground. In addition to the three grape vines at the rear, by taking advantage of the end lot with southern exposure, I have close to the hedge about 5½ feet from the house three more grape vines on an arbor extending up against the house and joining with the one at the rear. Where the two meet I have made a little summer house effect by filling in the side with narrow strips of wood making squares about 4 x 4 inches. This makes an inviting retreat in the heat of the day to while away an hour or two with a good book or to do some writing. Upon this trellis I have a Climbing American Beauty Rose which is set in the rose garden.

Toward the front of the house I have under the bay window, where the grape trellis ends, more Hollyhocks, and climbing over the end of the front porch (but still at the side) there are white and red Rambler Roses intermingled.

(Continued on page 64)

"Great Crops of

STRAWBERRIES

and How to Grow Them"

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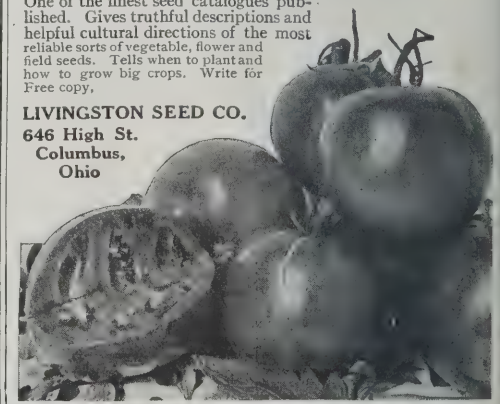
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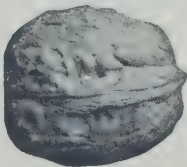
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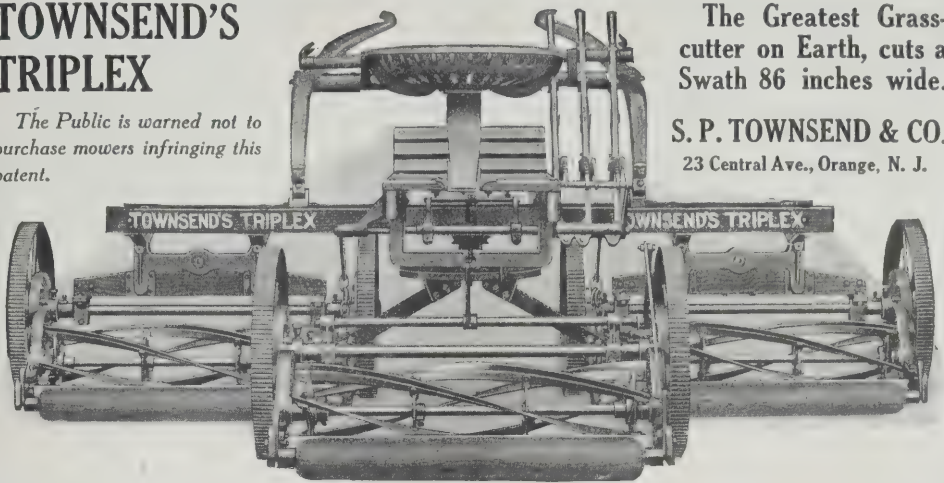
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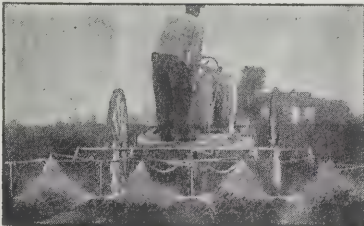
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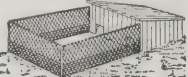
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10% discount for orders consisting of 10 sections or more. Best article on the market for young chicks, ducks, geese and other small fowl. Place your order to-day; you will be well satisfied. Send for folder No. 65-E.
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Herada, unusual glistening mauve.

Wamba, Enormous salmon.

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should be planned NOW, if you intend planting them this spring. By so doing you will be prepared to get best results at planting time. Our new illustrated catalogue tells you about the best things in fruits, ornamental trees, shrubs, vines, perennials, etc., and gives you a reasonable price for strictly first-class stock. Write for it to-day.

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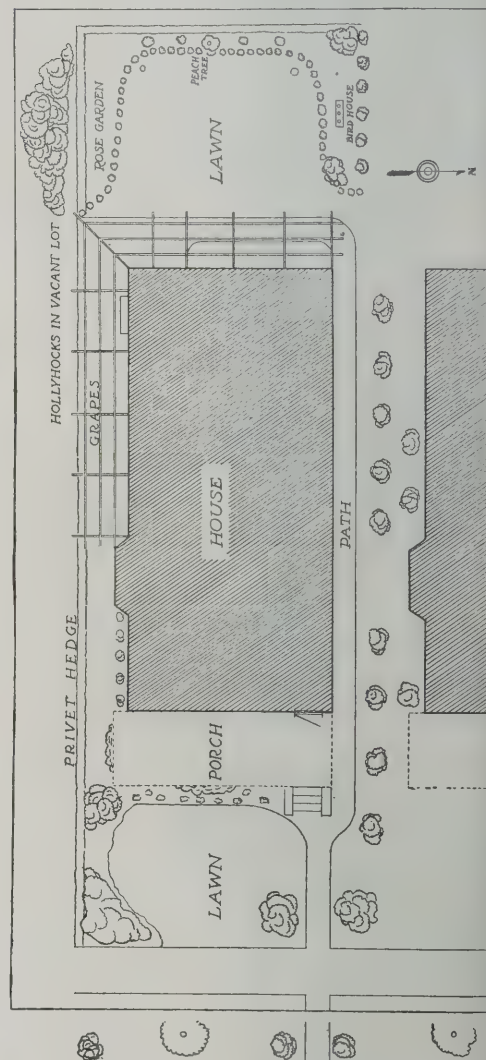
Nursery and Landscape Men

Box B

Fort Atkinson, Wisconsin

(Concluded from page 62)

In front at the base of the porch, from one end to the other, is a border flower bed with Pansies in the spring and later in the season Geraniums or Salvia. In the middle is a Honeysuckle vine that is not permitted to bloom very much until it reaches the second story of the house, as in this way it does not darken the lower porch and helps to shelter the upper porch, which has no roof over it. It is trained on a trellis and against some wooden arms that keep it away from the house and permits any painting to be done without disturbing it, and also enables one on the upper porch to sit under its shelter or even stand under it without striking one's head. In about three seasons it has grown from a small



Even if your actual garden area is only 32 x 100 ft., the real gardener can have a worth-while garden

slip stuck in the ground to be a fine sturdy vine whose branches reach to the top of the second story window.

My neighbors have told me that the perfume from it in June and July can be enjoyed half way down the block.

All these things that tend to make country life so beautiful I am enjoying in a built up section of Flatbush living in a detached two family house on a plot 32 x 100 feet. Can you beat it?

Brooklyn, N. Y.

H. S. SAMMOND.

[Frankly, we don't think we could "beat it." We could change things, but that would be a purely personal matter.—Ed.]

UNIVERSITY OF KENTUCKY

MAR

The GARDEN MAGAZINE

\$2.00
a year

MARCH, 1917.

25 Cents
a copy

DOUBLEDAY, PAGE & COMPANY, GARDEN CITY, N.Y.



Climate, soil and location, must ever govern the successful selection of trees, shrubs and flowers for your planting. This one is a decided success. We can assure a like result for you.

More About The Three H's—Or Helpful Help Hints On Your Planting Problems

FROM the way our friends are writing us for Help Hints in reply to our suggestions in last month's advertisement; it is abundantly evident that we have a valuable service much wanted by the many.

The requests for Help Hints, range all the way from the best quick clambering vine for covering a stone chimney, up to what and how to plant a new place, so it will look as if it had been established for years.

One dear old lady up in Vermont, wrote us she "was born in the sunny South, where the lovely Cherokee Rose was associated with her childhood days; and wanted to know if we couldn't send her some roses quite like the Cherokee? Ones that would stand the severity of New England's Winters." Happily we can.

Some inquirers, however, seemed not quite to have understood our Helpful Help Hints offer for their planting problems; as they asked us to send the Helpful Hints; just as if it were a booklet or a catalogue Hint-filled.

Our intention was to make it clear that if they would let us know what their planting problems were, we would gladly suggest their solution.

Just naturally, in order to help you intelli-

gently, we must have somewhat complete information.

For example, one Long Island man asked for a list of 12 best shrubs for foundation planting, and forgot to tell us whether it was for the North or South side of his home.

On the other hand, for a newly married couple in Rhode Island, who told us they wanted "a screen of evergreens 25 feet long, to shut out their neighbors' unattractive backyard activities," we promptly had an answer in the return mail.

One particularly pleasurable occurrence was the giving of suggestions for a rock garden for a retired banker's wife, living in a Philadelphia suburb.

For her neighbor, we have also subsequently planned a Shakespeare Garden of Hardy flowers.

All of which brings us back again to the starting point—our Helpful Help Hints.

We want you to use us, and them. Not that we are exactly an Information Bureau, but we have been able to offer our customers most satisfactory suggestions.

One thing certain, no one has finer stock than we grow right here in our nursery.

Our new catalogue you are most welcome to.



There is a lot of talk lately about roots. It leads us to think perhaps we haven't said enough about ours. Come to our nursery, and let us dig up a tree for you. We will let the roots speak for themselves.



You can buy maples for almost any price, but we doubt if you can beat these for \$2. They are 10 to 12 feet high, with trunks measuring 4 1/2 to 5 inches around. Special price of \$19. on lots of ten.

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At The Sign of The Tree
Box 10, Rutherford N.J.

JR

The Garden Magazine

VOLUME XXV

MARCH, 1917

NUMBER 2



AMONG OUR GARDEN NEIGHBORS

Dahlias in Minnesota.—I have no doubt that Carl Zapffe (page 14 GARDEN MAGAZINE for February) has been reached by the tarnished plant bug in Minnesota. These insects have made it practically impossible to flower the Dahlia here for a long time and they are now attacking the Calendula and some other flowering plants. They are a mottled brownish or greenish bug, not a beetle, about as big as a small grain of wheat and when they sting the Dahlia it will not blossom for a long time. If I try to raise the Dahlia next season I shall cover every plant with a wire or cloth screen till the bug disappears in the fall. I made something of a fight last season by picking the insect off the Calendulas and using insect powder on the Dahlias, though I did not begin early enough to save them. The plants grew sturdily enough, but not one of them blossomed. If the buds formed they turned brown at half size and did not grow any more. I have been acquainted with this insect a long time and would very much like to know how to get rid of it.—*John W. Chamberlain, Buffalo, N. Y.*

The Garden Magazine is Appreciated.—If I disliked THE GARDEN MAGAZINE, I would write and tell you so, or else I would quit taking it! Inasmuch as I like it very much, I think it is no more than fair for me to write and tell you how well I like it. I read every column of the reading matter and almost all of the advertisements. Some of your special articles are of exceptional value to me. I think that, all in all, I like best the "Which and Why" articles by Mr. Adolph Kruhm. These seem to me to be the best of their kind, and each article is worth a year's subscription to your readers, I think. The article on "Lettuce" in the March, 1916 issue struck me as being so well written, and the illustrations were good. His articles are written in such a concise and pointed manner that they can't help but clear up many of the vague points in the minds of amateurs.—*J. N. Lait, Nebraska City, Neb.*

Where Landscape Articles Fit.—My acquaintance with THE GARDEN MAGAZINE is not so very old and perhaps that is why I find it so interesting. Of course, some articles do not appeal to me at all; a good many, that I read with interest, cannot possibly be of help in our climate and with our soil conditions,

but it is a pleasure to me to know what can be grown in other sections of the country, and what a big garden can become. At any rate, I haven't a number that did not bring me something; in fact, more than I can use. With the value of landscaping just coming to the place it should hold in our country, THE GARDEN MAGAZINE certainly should give it plenty of space. Even our villages are waking up to the fact that it is right to make themselves as beautiful as possible. How can this be done without a proper plan? And so, why not get some ideas from a reputable magazine before we hire an expensive landscape architect?—*Mrs. C. A. Kirby, Heron Lake, Minn.*

Can We Have Winter Flowers?—We who stay beside our gardens all the year sadly miss their flowering in the winter. It has been my effort to prolong the autumn blooming and to hasten the spring by all the means within my knowledge, but there must always be at least three flowerless months. I read the delightful narratives of English gardeners, who go about their gardens in mid-winter, peeping behind a sheltering boulder or turning back a blanket of leaves to find this or that lovely thing bravely flowering and I wonder if, even in the climate of New York, some of this pleasure might not be ours.

The latest flowering perennials in my garden are *Aconitum autumnale*, *Anemone japonica*, *Chrysanthemum nipponicum*, *Aster tartaricus* and *A. grandiflorus*, *Helianthus maximilianus*, the hardy Japanese *Chrysanthemums*, and *Crocus speciosus*. These carry us well into November and through this month there are usually a number of annuals that vouchsafe a quite sturdy flowering. Often on Thanksgiving Day I have gathered a charming nosegay of China Roses and purple Horned Violets for the dinner table. December and January are bare of flowers in my garden, but in February, if there comes a warm spell, an indomitable little *Daphne mezereum*, against the warm south wall, slips on a lavender garment that accents the air for yards around. Occasionally too, the Naked Jasmine, on the same warm wall, ventures a few yellow stars, but usually waits for March for a full display. With early March come the Snowdrops and Winter Aconites, closely followed by *Crocus imperati* in sheltered corners, and I frequently enjoy the brilliant

violet-scented blossoms of *Iris reticulata* above a carpet of snow. But these are not enough; and if any readers of THE GARDEN MAGAZINE can give me news of flowers, wild or cultivated, with which to deck out this cheerless season, I shall be very grateful. Can any one tell me of the winter Heliotrope, *Petasites fragrans*, or of *Iris stylosa*?—*Louise Beebe Wilder, Pomona, N. Y.*

Wistaria Does Not Flower.—A few months ago an inquiry was made regarding a Wistaria vine that did not bloom. I knew of one that was fine as a vine, strong and sturdy, but no flowers. The remedy lay between an axe and treatment which was this: a hole was dug beside the vine in the late fall and a bushel of rich hog manure buried there. The treatment was drastic but spring time brought a wealth of flowers, almost rivaling the famous Japanese pictures of Wistaria. The treatment was followed up in a milder way and the vine was a thing of beauty.—*Mrs. G. W. Bain, Nassau, N. Y.*

Experience with Plant Forcers.—My curiosity was aroused about two years ago, by wonderful tales of results obtained, by using plant forcers and I decided to test them for myself. During the late winter of 1915-16 I obtained several styles or types of these forcers. Some had board sides with glass over the top, being built on the same lines as a coldframe, only much smaller; others had paper sides, the paper being treated with a substance to prevent injury from moisture; still another style had glass sides, in fact it was practically all glass. The last style reminded me of the French bell glasses, common in European gardens. The foreign forcer or plant protector is round or bell shaped while the American is made entirely of flat panes. Another style differing in construction from the coldframe was also obtained. It consists of specially treated paper on the back and sides, but with a glass front.

The early spring of 1916 was ideal for testing. There were warm sunny days, followed by cold nights or days, and also enough rainy days. Corn and beans were started under several forcers about four weeks before they could be safely planted without protection. April 22d, lettuce and radish were planted at the same time in a long row, and at intervals a plant forcer was placed over the row.

In due time the seeds germinated and developed fast under protection. Those outside had two or three setbacks due to temperature falling to 29 and 30 degrees. April 27th a few tomato plants were transplanted under the tall plant forcers. One night the temperature fell to between 27 and 28 degrees. The plants looked rather sickly the next morning, but recovered again and grew wonderfully well. Radish and lettuce under cover, May 10th, were 2½ times as large as those without protection. Beans and corn were three inches tall. Tomatoes were spreading out and growing fast. We then had a cold night when the temperature fell below 27 degrees and the next morning my test with beans, corn and tomatoes, first planting, ended, because they were frozen and could not recover! The radish and lettuce were not hurt much and continued after a slight rest, to demonstrate the great advantage of plant forcers. I immediately replanted under each forcer, and by so doing, obtained an advance crop ten days ahead of regular outside plantings.

From my first year's results I am frank to say that plant forcers will not protect from a hard freeze where the temperature falls below 27 degrees; but, where no such drop in temperature is obtained, they will protect and they will give advanced results.—A. E. Wilkinson, Ithaca, N. Y.

The Butterfly Bush (Buddleia).—Of late years the Butterfly Bush, Summer Lilac, etc., has been very much advertised and exploited. We acquired some specimens under the name of *B. variabilis* Veitchii, simply because the name sounded attractive, the pictures looked pretty, and every one else seemed to be buying. But to tell the truth, we were decidedly disappointed; the plants seemed weak growers; did not branch out into dense bushes, as shrubs usually do, and inclined to winter kill; blossoms were few and not at all showy. They received exactly the same care as the old favorite shrubs, and when friends and neighbors reported the same lack of success we condemned *Buddleia variabilis* as a novelty of little worth.

Last summer, however, I was traveling in Lancaster Co., Pennsylvania, and found a Butterfly Bush growing and flourishing in a manner most astonishing—especially after my own unsatisfactory experience. I could not resist further inquiries as to care and treatment, and also to take a photograph. This bush was growing by itself in full sun. It was at least six feet high and eight feet in diameter, symmetrical in form, with dense leaf growth and covered with rich fragrant spikes of flowers. It was truly living up to its name for a dozen or more gorgeous big butterflies were hovering over the blossoms. This was at a little power station at a junction of two trolley lines. The man in charge had much leisure time and interested himself caring for the flowers and tiny grass plot. I learned that he treated his *Buddleia* more like a half hardy perennial than a hardy shrub (as it is described in the catalogues). In winter it is protected with a covering of manure, and bundles of cornfodder shield the top from the sun's rays. Before growth starts in the spring the top is cut back—leaving about two feet of the main branches. This causes a thick new growth each year. Every day in dry weather a bucket of water was poured around the roots, and sometimes a little fertilizer given. This daily care during the parching summer time is perhaps the chief reason for his success. Moisture and food encourage a constant

growth so that a succession and wealth of bloom follows as a natural course.—Elinor S. Brinton, West Chester, Pa.

[Unquestionably the best treatment of the plant is to cut it down annually and depend on the new growth. It is to be regarded as a subshrub, like the Bush Clover, or even Perennial Phlox. Water too, and that in abundance is imperative for any good results.—Ed.]

Alpines for Early Bloom.—We are intrigued by those "Alpines which bloom earlier in spring than anything else you can grow" (see GARDEN MAGAZINE for January, page 201). Our diminutive rock garden is our favorite child at present and we shall be very glad to buy it the new toys you mention if



Summer Lilac (*Buddleia*) six feet high. It is treated as a half hardy perennial and given plenty of water in summer

you will tell us their names and how to make them work.—Carl S. Miner, Chicago, Ill.

—As an ardent alpine plant enthusiast I was greatly interested in your note hinting that alpine plants might be grown even though the only space available happens to be a border along the fence. Why not indeed grow a few alpines? As you point out, a square yard will accommodate a score of plants, and then, think of the interest and enjoyment that can be obtained from that square yard! No other class of plants possesses their delicacy and brilliance of coloring and their cultivation has that element of difficulty that is sufficient to stimulate our interest and one comes to love them for their very capriciousness. They are not so very hard to grow if we only study them a little and minister to their, sometimes, exacting needs. Most alpines will succeed when they are planted in a deep stony soil, very well drained (this is most essential) that will encourage their roots to penetrate so that they may be cool and moist during the hot summer days. If they are planted on the lee side of a large rock their roots will usually manage to find cool moist conditions, and if large rocks are not available a few stones placed on the surface amongst the plants will prevent evaporation and help toward giving that coolness at the root which is so essential. Here is a list of a few (only a few of the many available!) "alpines which will bloom earlier in the spring than anything else" that have been grown successfully around New York and which are obtainable from nurserymen in this country who make a specialty of alpine and rock plants.

Adonis vernalis a plant which grows about 12 in. high with beautiful, fern-like foliage topped with glistening yellow flowers two or

three inches in diameter. Grow it in half shade in deep sandy soil containing humus, do not disturb it once it is in position, and, year after year, it will bloom and charm with its dainty freshness.

Anemone Pulsatilla (The Pasque Flower). For a sunny position. The soil should have some old mortar or broken limestone mixed with it. It has silky, lilac purple flowers. There are several varieties—red, white, and double. The high alpine, *A. vernalis*, is an even more exquisite plant but I have not been able to find it listed in any of the American catalogues.

Erinus alpinus likes a sunny well drained position. It delights in growing in the chinks and crevices of an old wall. About three inches high, with rosy purple flowers. The variety *carmineus* with carmine flowers is the prettiest little gem imaginable.

Myosotis alpestris (Alpine Forget-me-not). The true high alpine form is a compact, little plant about three inches high spangled with blossoms of azure blue. This alpine Forget-me-not differs greatly from the common *M. palustris* but some nurserymen do not seem to appreciate this fact and supply the latter when the former is ordered!

Nocca alpina, or, *Hutchinsia alpina*, forms tufts of tiny glossy foliage, starred with pure white blossoms. It grows about three inches high. Calcareous, gritty, soil, and sunshine, cause this plant to thrive.

Omphalodes cappadocica, more correctly *O. cornifolia*, grows about a foot high, and has true blue, forget-me-not like flowers. Moist well drained soil, and a semi-shady position is most suitable for this species.

Primula Auricula—Bears-ears—Alpine Auricula. Is sometimes precocious and produces its blossoms in November and December. The high alpine form has its leaves covered with a white, farinaceous like substance. It is easily grown.

Primula denticulata. The Himalayan Primrose, has round balls of lilac flowers produced on stems six inches to a foot in length before the leaves appear. It likes a rich, moist soil.

Primula marginata is one of the gems of the genus. It has toothed, grayish leaves with silvery margins. The truss of rose colored flowers is often larger than the entire plant. It is perfectly at home when planted in a rock crevice packed with leaf soil.

Whilst on the subject of alpine plants I would like to ask; has any one used them as an edging to the hardy perennial border? If not, why not? They are excellent plants for this purpose. A few small rocks can be disposed, as naturally as possible, along the front of the border and a selection of the more easily grown species planted. A delightful effect can be obtained, when the border is flanked by a gravel path, by using the trailing kinds, which should be allowed to encroach upon the walk, giving a natural and informal appearance unobtainable in any other way.—M. Free, Brooklyn.

New Acquaintances.—One of the pleasantest and most advantageous branches of gardening is the making of new acquaintances. Not necessarily plants of recent introduction, but any that have not before come our way and that we have reason to think would be lovely and suitable to our conditions. In America our circle of flower friends is as yet rather limited and there is every reason why it should be extended to include some of the many delightful char-

acters of diverse nationalities that may easily be drawn into it.

Not every one has time or space for much experiment and no one desires to fill his garden with uncertainties. For this reason I am sending the following list of plants that have been collected out of those tried in the past three years, to become permanent residents of the garden. All are hardy and desirable.

*Alyssum rostratum** and *argenteum*.
*Anchusa myosotidiflora**.
Aster (hardy) *Glory of Colwell*, *Feltham Blue*, *Mrs. Perry Improved*, *Thomsoni*, *Climax*.

*Campanula lactiflora alba magnifica**,
*E. Molineux**, *Brantwood**, *carpatia White Star*.*

*Corydalis cheilanthifolia**, and *lutea*.*
Delphinium Lizzie, *Clivedon Beauty*, *Capri*, *Amos Perry*, and the varieties of *grandiflorum*, *Blue Butterfly*, *Azure Fairy*.*

Doronicum plantagineum var. *excelsum*.
*Erigeron speciosus** var. *superbus*.
Eupatorium ageratoides (for shade).
Euphorbia polychroma—"Spurge."

Geum, *Mrs. Bradshaw**,
Iris setosa, *Labrador**, *lurida*, *Monspur*, *lutescens*.

Lilium Brownii, *Hansonii*, *croceum*.
*Linaria dalmatica**,
Muscari (*Grape Hyacinth*) *Heavenly Blue*.

Narcissus, *Beauty*, *Katherine Spurrel*, *Madame Plemp*.

*Oenothera Afterglow**, and *fruticosa*.
Paeony, *Mme. Emile Gallee* and *Albatre*.

*Papaver rupifragum**,
*Primula pulverulenta**,

Phlox Peach Blow, *Africa*, *Wanadis*, *America*, *Baron von Dedem*, *Rijnstroom*, *Le Mahdi*.

Salvia virgata nemorosa, *Sclarea*, "*Clary*," and *uliginosa*.

Scutellaria baicalensis.
*Thalictrum dipterocarpum**, *glacum* and *minus adiantifolium**,

Tulip (*Cottage*) *Moonlight*, *Inglescomb Pink*, *John Ruskin*.

Tulip (*Darwin*) *Mystery*, *Salmonea*, *Flamingo*, *Crepscule*,
Duchess of Hochberg, *Bleu Celeste*.

Verbascum Miss Wilmot, *phlomisoides** and *Apricot Hybrid*.*

*Viola G. Wanberg**,

ROCK PLANTS

*Aubrietia Lavender**, *Mrs. Lloyd Edwards**,

*Arenaria montana**,

*Achillea Clavennae** and *tomentosa*.

*Armeria setacea** (syn. *juncea*).

*Campanula pusilla**, and *Portenschlagiana**,

*Dianthus atrorubens**, *arenarius**, *caesiuss**, *graniticus**, *neglectus**, *petraeus**, *superbus**, *sylvestris**,

Erysimum pulchellum (syn. *rupestre*).

*Gypsophila repens**,

*Helianthemum vulgare**, and *Mrs. Croft**,

*Lychnis alpina**,

Mentha Requienii.

*Pyrethrum leucophyllum**,

*Silene asterias**, *alpestris**, and *Schafta**,

Stellaria Holostea—"Stitchwort."

Those marked * were raised from seed.—
Louise Beebe Wilder, N. Y.

Snow Wreath! Why So Rare?—As it seems to be in order now to pay attention to the lesser known, but perhaps, at the same



Snow Wreath (*Neviusia alabamensis*) a southern native shrub that grows well in New York State. Flowers white in May. It is allied to the *Spiraeas*

time, more worthy native plants, I would introduce for favorable consideration the Snow Wreath, *Neviusia alabamensis*, named, as I learned, for its discoverer, the Reverend R. D. Nevius. About three years ago, a friend in Rochester, N. Y., gave me a small piece of this little shrub, in general habit like the *Spiraeas* to which indeed it is closely related, and it has been growing at Garden City, and flourishing indeed ever since. In its season of bloom it recalls in a way the Fringe Tree, only in miniature and shrub form. At Garden City it flowers during May and is completely gone by the end of that month, although it is described as flowering in June and July.

There is only one *Neviusia* and that is found near Tuscaloosa Ala. and on Sand Mountain. The entire flower looks like a tassel of creamy white filimus. There are no petals and the flowers are produced in profusion along the slender wand-like branches. In the Standard Cyclopedia of Horticulture we read: "It does not seem perfectly hardy North of Philadelphia, though it can be grown as far North as Massachusetts in sheltered localities." At Garden City it grows in the full exposure without any injury. The soil is open, loose gravel, and therefore well drained. The

Cyclopedia says: "It likes a loamy, well drained soil." It seems to grow well, too, at Rochester, N. Y. The plant is a medium sized shrub and the leaves ovate, doubly serrate, and the five sepals are quite conspicuous and persistent.

The plant has been recommended for forcing indoors, but I have never seen it used that way; but where it will thrive in the open garden I do not know of a more graceful shrub in its season. The feathery blossoms attract a great deal of attention. Their character is well shown by the accompanying illustration.—L. B.

What's this Variegated Vine?
—Will Bernard H. Lane, who wrote of the Pepper Vine in the February number (or any one else) tell me the name of my variegated-leaved vine,

which must be quite nearly related to the Pepper Vine? It is a rather slender, tendriled vine, with grape-like leaves and reddish stems. The berries are blue and similar in appearance to the Pepper-tree berries that I have seen in California. The vine is nearly hardy here, having wintered without protection for some time, though it does not increase in size very fast. It is very handsome, on account of both the green-and-white leaves, which look like a small grape leaf, and the berries. I have supposed that it was a *Vitis*, but it may belong to the closely-allied *Ampelopsis*.—*John Chamberlain, Buffalo, N. Y.* [Possibly *Ampelopsis heterophylla*, which was, however, formerly called *Vitis heterophylla*. There is a variety *amurensis*, which is a stronger grower, and makes a good live wall cover.—Ed.]

The Modern Covers are Liked.—After looking over back files of THE GARDEN MAGAZINE I wish to congratulate you on the improvement in the cover designs. The one from your November number now hangs on the wall of my den, framed in a narrow antique gold frame. The articles "What Kind and Why" by Adolph Kruhm are the best garden articles I have read in twenty years—*Ross Nichols, Portland, Oregon.*

THE MONTH'S REMINDER

MARCH should be a month of most active preparedness rather than one of watchful waiting. The lazy gardener may lie down on the job, if he wants to, with self satisfaction; but it is also the month when the energetic gardener grabs Time by the forelock with both hands and gives him the biggest yanks he is capable of. The count is taken in June!

KEEP UP-TO-DATE ON EQUIPMENT

DON'T spend all your evenings with the seed catalogues. Keep up-to-date on garden helps as well as on vegetable and flower varieties. Within the last five years there have been at least a score of practical and really helpful little inventions and intro-

ductions that save time or make garden results surer or earlier. For example the paper pot. For "pot plants" of tomatoes, peppers, etc., and starting things that are not usually transplanted, such as Sweet Peas, melons, lima beans, sweet corn, etc., paper pots are superior to the ordinary clay flower pot; they hold a third to a half again as much soil in the same space, and do not dry out, giving stronger plants with less care. They are to be had in various sizes and depths either in individual pots, or in "multiple," like an egg-crate filler, designed to fit into a flat. With the latter, even such plants as cabbage and lettuce may easily be grown as "individuals," giving plants that are not checked in transplanting, and therefore gaining several days over the

ordinary kind. Plant "forcers" or "boosters" of various types, designed for continuous rows, individual plants, and hills, are also indispensable to the gardener who is looking for the earliest results; with them cabbage and early plants can be set out as soon as the soil can be dug, and growth will begin at once even if there is a "relapse" to bad weather such as usually happens after the first few good days. Other handy accessories include a new type of sled or scuffle-hoe; a handy little adjustable marker; a pulverizer and seed-bed preparer, new this year; handy celery bleachers; plant protectors and supports of various kinds. [Next month's GARDEN MAGAZINE will give special attention to recent inventions in tools and appliances.]

IS THE HOTBED MADE UP YET?

ABOUT the first and the most important out-door job for the month is the making of the hotbed. No matter how wintery no time should be lost in getting ready to plant. We gave directions for the preparation of the manure last month. After the bed is made up, wait until the temperature begins to drop—gets down to about 85 to 80 degrees F.—before you begin to plant—hardy things first, and toward the end of the month the tender things. While seeds may be sown directly in the soil it will really save time, and be more convenient in caring for them later, to make a few flats for sowing. In this case, a corner of the bed may be left with only a couple of inches or so of soil, over the manure, where the seed flats may be put.

KEEP 'EM FROM CHOKING EACH OTHER!

SEEDLINGS started last month in the greenhouse or the early hotbed needing close watching and transplant just as soon as they are large enough. The better the start they get the more danger there is that they will injure each other if left even a few days too long. Many gardeners transplant directly into the soil in the frames. If you have been in the habit of doing that, try at least part of your plants in flats this season. Make them deep enough—at least three inches, and for cauliflower and second transplanting of tomatoes better three and a half.

TRANSPLANTING FOR BEGINNERS

TRANSPLANTING: (1) Go to it just as soon as the seedlings are big enough to handle.—(2) Don't feel that you must save every little seedling; discard the weak ones at the beginning and give the others the room they would have taken up.—(3) Don't do a "wobbly looking" job; put the stems well down into the soil; almost up to the seed leaves.—(4) Sift the soil before transplanting (saves finger nails, temper and time!).—(5) Put a layer of old manure or compost in the bottom of each flat, and press the soil down firmly, especially in corners and along sides, before you begin to plant.—(6) If no manure is available, mix a fourth to a third of "humus," and a sprinkling of bone meal flour, with the soil.—(7) Water the soil thoroughly—preferably by placing the flat for a few minutes in a shallow pan or tub and letting it soak up from below—BEFORE transplanting. Water only lightly, to settle the soil, afterward, and withhold water for a few days.—(8) Keep the plants shaded from hot sun until they "take hold."—(9) Keep in same temperature in which they were growing for a week or two, when they can be removed to a cooler place, such as cold-frames.

FOR EXTRA FANCY PLANTS, USE POTS!

ALL plants, whether vegetables or flowers—from which extra early results are wanted, should be pot-grown. Just try a couple of dozen cabbage and lettuce plants in small paper pots or dirt bands and set them out side by side with flat-grown ones, and note the results. For tomatoes, egg-plants, etc., four or five inch pots should be used. You can set out tomato plants with the first fruit clusters set and well started as easily as not if you will take the trouble to grow the plants. And with the handy, inexpensive plant protectors now available, you can set them out a week or ten days sooner than heretofore.

DON'T LET THE NEW CUTTINGS RUN AWAY

WHAT was said in regard to attending to transplanting strictly on time applies equally to the cuttings put in during the last few weeks—only more so! You can see when the seedlings are spoiling for attention, but the cuttings are likely to get away from you underground, before you realize it. The best time to "pot up" is when the newly formed little roots are but a quarter to a half inch long; after they get that far a few days' neglect may allow them to get two or three inches long, and in a tangle that will mean breaking off many of them in potting, without there being any noticeable change in the tops to give warning.

POINTERS FOR BEGINNERS

POTTING: (1) *Get at 'em early:* better a root just pushing out than two inches long; it will come all right in the pot.—(2) *Don't use*

DO THIS MONTH

Send orders that are still delayed.
Investigate new garden tools and helps.
Make-up the hot bed.
Sow early vegetables at once if not already started.
Transplant seedlings as soon as ready.
Provide paper pots for extra strong plants.
Pot off cuttings as fast as rooted.
Select or start plants for cut flowers in April and early May.
Start roots or bulbs for potting up.
Get coldframes into commission.
Prune grapes before first warm days.
Prune cane fruits as soon as possible.
Haul and prepare pea-brush and bean poles.

PLANT THIS MONTH

Vegetables Under Glass; for forcing in the hot-house: cucumbers, melons, tomatoes, dwarf beans.
In the coolhouse or frames: beets, carrots, lettuce, cauliflower, onion sets, peas, radishes, and spinach.

Under glass for setting out: second plantings of beets, cabbage, cauliflower, lettuce; and in the first part of the month, or by the middle, according to locality, first plantings of celery, egg-plant, peppers, okra, and tomatoes.

Out of doors, as soon as ground can be worked: plant onion sets; sow smooth peas, lettuce, onions, radish, beets, Swiss chard, spinach, and early turnips; also celery for plants to be transplanted later; and where favorable, well hardened lettuce, beet, and cabbage plants from seed sown early last month.

Flowers; Under Glass For Next Fall or Winter Use: Begonias, Primulas, Fuchsias, Cineraria, Asparagus, Smilax and others mentioned last month, from seed. Carnations, Chrysanthemums, etc., from cuttings.

For cut flowers for spring: Clarkia, Calliopsis, Asters, Snapdragons, Gypsophila, Mignonette, etc., for transplanting to greenhouse or frames.

Outside as soon as soil can be worked: Sweet Peas. Also transplant or divide, early blooming hardy perennials in variety as Pansies and English Daisies.

Bulbs under glass, start: Caladiums, Callas, Amaryllis, Oxalis, for summer blooming porch plants; and Cannas and Dahlias for setting outside later when weather is warm.

big pots; two inch for most things, or two and a half for extra stout Geraniums, will be better than larger. If you get stuck and have to use big pots, put in plenty of drainage material, and place several cuttings in each, near the edge.—(3) Use freshly sifted soil, with a little sand added if it is heavy; fill the pot, if a small one, level full; put the rooted cutting well down into it; rap the bottom firmly against the bench to settle the soil; press it down still firmer with the thumbs; and the job is done!

After treatment same as for transplanted plants.

DON'T LEAVE A HOLE IN THE SPRING

OFTEN there is a gap in the supply of cutflowers between the time the winter sorts begin to fail, and the first good things come out of doors. Make provision now,

against getting caught. A few plants picked out now and discouraged from flowering will bloom freely later; a few of the strongest of the seedlings of annuals and early blooming perennials, if given a little extra room and care now, and set out in a bench or in a warm frame, will come along two or three weeks earlier than the out of door things. On many places there are perennials that would be all the better for dividing in the spring, and a few surplus clumps taken up now and put in the greenhouse or a frame will flower freely. Look ahead!

START ROOTS AND BULBS FOR POTTING

CANNAS, Dahlias, Caladiums, Tuberous Begonias and similar things will give much quicker and surer results if well started before being put outside. Instead of placing them directly in pots place in flats of sphagnum and sand, on the return pipes or in some other warm place, and pot up when they show good strong sprouts. The Cannas and Dahlias will be better if cut and placed with a single sprout to a pot. Tuberous Begonias should be placed at first in pots but little bigger than the bulbs, and repotted as they are grown on.

COLD FRAMES AND SASH IN GOOD SHAPE?

IT IS only a short time now before every square foot of "glass" or cover of any kind that is available will be wanted for plants growing or being hardened off in the frames. Fix up frames the first good day; fix sash on a bad day. A good banking up with coal ashes or soil will do a great deal toward making an old leaky frame serve for another season. Cracks can be stuffed with sphagnum; that is not as good as a substantial repair, but it is better than having the frost strike through and nip something.

LAST CALL FOR GRAPE PRUNING

IF THERE is one plant that will "bleed" more irrepressibly than anything else it is the grape. Also, it requires about the severest pruning of anything in the garden. So if this work is still waiting to be done, get at it immediately. Grape pruning is a somewhat complicated job—if you haven't done it before, look up all the information you have available on it.

GIVE THE CANE FRUITS A CHANCE THIS YEAR

DID you cut out the old blackberry and raspberry canes last summer or fall, after they had fruited? If not, clean them out now, as soon as the snow is out of the way. And burn them. The new canes—last season's growth—should be headed back a little; quite a bit, if you want them to be self-supporting. But don't "prune them up" from the bottom "to make them look neat and trim."

HAVE YOU ANY PEA-BRUSH?

THIS is about the last chance you will have to get it. Have it drawn and laid in a long low pile, all one way, and the butts even. Then lay over it plank, with heavy stone on top, concrete fence posts, or any other old thing that will give it a good pressing down. Before it is used, you can take your pruning shears and snip the tops off even. Peabrush so "treated" will not only be much easier to handle, and look infinitely neater; it will go farther, and if space is limited, you can get your tall peas six to twelve inches closer together with it than with the just-as-it-comes straggly kind.

WHAT'S NEW THIS SEASON

A REVIEW OF THE TRADE'S OFFERINGS OF NOVELTIES IN SEEDS, PLANTS, SHRUBS, ETC.

By THE EDITORIAL STAFF

EACH year all branches of the trade—seedsmen, plantmen, nurserymen and florists exert much energy in an effort to lay before all plant lovers and garden makers a selection of new and interesting subjects for cultivation in the garden and greenhouse. Not a year passes without there being some novelties that, to say the least, merit attention. This year THE GARDEN MAGAZINE asked the coöperation of the introducers in gathering together the cream of the season's introductions so that the readers of the magazine might easily get as it were, a "bird's-eye view" of the whole. The influence of the European war is clearly to be seen in the comparative scarcity of seed novelties in both flowers and vegetables; which loss is, however, being met by improved lines of such staples as are grown in America.

A great activity is noticeable among the nurserymen too in introducing the recent discoveries of hardy shrubs and herbaceous plants from China. A glimmering awakening of interest in alpine may be deduced from the prominence given in a few cases to both European and native mountain plants.

"What's New?" The fascination of the new, experimenting with "said to be superior" has always held an allure. With the whole world to draw from the offerings every year are assuming the proportions of a perplexing problem.

To the layman, the novelty pages of a seedsman's or nurseryman's catalogues are the most interesting part of the book, also the most complex. Even the craftsman is not always in a position to judge on the strength of descriptions and illustrations offered, where the different kinds "belong." The introducer's name that stands back of a novelty, is, in most cases, the best guarantee as to its merit. Yet, what pleases one homegardener, does not necessarily meet an equally favorable reception from all of us—conditions are variable, and personal requirements are individual. The progressive gardener studies the novelties. And be it remembered that everything which we grow as a "standard" to-day was at some time

previously a novelty somewhere to someone. Progress is made by reaching into the unknown—trying out novelties.

HARDY AND OTHER ANNUALS

THE effects of the European disorganization are clearly seen in the dearth of flower seed novelties. It is also to be noted in passing that from the same cause annuals in separate colors (excepting such as are the product of domestic growers) are practically unobtainable. The American seedsmen are meeting the situation, however, and offer, for example:

Verbena Crimson King (Howard & Smith). Large scarlet florets and trusses. The raiser claims that on well grown plants individual flowers will cover a silver dollar. *Schizanthus Pink Beauty* (Michell). Rose pink, without any marking. *New California Poppies* (Dreer), in named varieties including *Geisha* with ruffled petals scarlet on the outside, rich golden orange inside, and *Vesuvius* with uni-

cream, and produces a large proportion of doubles or duplex blooms.

A number of improved "Orchid flowered," types are offered by more than one house, but inasmuch as they are mere color variations the reader can get the detailed information from the catalogues.

The *China Aster*, an established specialty of the American seed trade, naturally crops up in selected types and pure colors—two pink, one red, viz., *Pink Superb* (Michell) of the Comet type and *Peerless Pink* (Dreer) of the popular Late Branching type. *Sensation* (Dreer) is of the Dwarf Bedding type, with garnet red flowers.

The *Double-flowering Cosmos*, already referred to and illustrated in THE GARDEN MAGAZINE for January, is a popular offering by all the leading specialists. The type is not quite fixed as the flowers vary considerably in their degree of doubleness; offered in pink and white.

Cosmos Midsummer Giants (Farquhar) is offered as an early-flowering strain, about four feet high and in three separate colors—pink, white, and apple-blossom.

Solanum ciliatum (Dreer) an interesting plant from Porto Rico, is handled in the same way as *Petunias* or *tomatoes*, it grows about two feet high, with bright shiny prickly leaves, bearing small white flowers followed by scarlet fruits which remain on the plants after the leaves have fallen.

Texas Bluebell (Vaughan) is a species of *Eustoma*, closely allied to the *Gentians* having the purple-blue color of the family, and native in the Southern States. In Southern California where it has been previously grown, it is perennial.

Two new forms of *Salvia splendens*. Var. *Elizabeth Dunbar* is a white chance seedling, discovered by Mr. John Dunbar, Assistant Superintendent of the Rochester Parks. Flowers similar in shape and size to the old form, pure white corolla and light creamy white calyx; plant dwarf and bushy; offered in plants only, but said to come true to color from seed. Var. *Scarlet Beauty*, also dwarf, color more intense brilliant scarlet than *Clara Bedman*. (Vick).



The New German Iris, Mrs. Sherwin-Wright, has golden yellow flowers. A chance seedling. (Dreer)

form coppery-red color. *Giant Flowering Zinnias* in distinct colors (Stumpp & Walter) are another instance of American industry in concentrating on distinct color strains. A New Double Morning Glory is *Snow Fairy* (Burpee). "A well-formed single white Morning Glory in the centre, completely surrounded by numerous white petals."

It is somewhat surprising to see so few *Sweet Pea* novelties that are absolutely novel—perhaps the truth is that the limit of variation along present lines is approaching. *Floradale Fairy* (Burpee) is the nearest approach to a yellow *Sweet Pea* that has yet been obtained. It is a large flowered, rich



Oxytropis hybrida grandiflora, a perennial with silvery growing foliage and pea-flowered spikes of bloom. Likes dry hot sites. (Dreer)



The silvery-lavender *Phlox* (*P. argillacea*), native of the sand barrens of the middle west, flowers from May to August. (Palisades)

HARDY HERBACEOUS PERENNIALS

THE decided tendency of the average American garden owner to concentrate more and more on ironclad plants for the outdoor garden meets with an active response. The recent discoveries of hosts of new plants in China, and which are so admirably adapted to American conditions, is stimulating the dealers to reach out for the best of them, and quite a number are offered this year for the first time. Since it takes time to work up a commercial stock of anything of this nature, we cannot expect to find all the possible acquisitions put before us at one time, and the tendency seen this year may be taken as an indication of the way the tide of novelty introduction is to flow for the next few years.

It is equally to be noted that a few meritorious native plants are being given some attention. A strange condition it is that has hitherto sent us to the European grower when we wanted many noteworthy native plants, a condition that is not yet entirely obviated indeed.

Among the specialties of this season's offerings are also a few plants, old so far as discovery is concerned, yet appropriately novelties, when regarded from the viewpoint of the gardener.

Aquilegia akimensis. A Japanese alpine Columbine with large blue and yellow flowers (Dreer).

Anemonopsis. From Japan. (Be careful not to confuse this genus with *Anemopsis* which is a Mexican drug plant.) The bell-shaped flowers are rich violet, large and of a waxy appearance. Adapted for shaded locations. Height 2½ feet. (Michell)

Anemone hupehensis. From central China, allied to *Anemone Japonica*. Grows from 10 to 12 inches high, flowers 1½ inches in diameter, pale mauve-rose, from early in August until late Autumn. (Dreer)

Aster amellus King George. Individual flowers are said to frequently measure three inches in diameter. Blue. (Dreer)

Aster novae-angliae Glen Eyre. Bright pink shading to lavender-pink. (Pierson)

Erinus alpinus. An alpine plant imported from Europe and valuable for wall or rock garden. (Knight & Struck)

Hemerocallis citrina. A species from China. About four feet high, with pale lemon-yellow flowers. (Dreer)

Hemerocallis Meehani. A garden hybrid Day Lily; with deep yellow fragrant flowers. (Meehan)

Heliopsis scabra varieties. These resemble somewhat the hardy Sunflowers. Blooming season July—August. Var. *gratissima*. Single flowers with 4 or 5 rows of reflexed florets of ochre yellow shade. 3 ft. Var. *excelsa*. Double flowering having 4 or 5 rows of petals, with fringed tips, chrome-yellow. 4 to 5 ft. (Michell)

Hibiscus Mallow Marvels. This year sees the offering of named varieties of what has hitherto been a mixed strain: Purity, white; Mammoth, creamy white, crimson centre; Maiden Blush, blush white, crimson centre; Nymph, light pink, white centre; Early Bell, light pink, crimson centre; Monstrosa, deep pink, crimson centre; American Beauty, shade of American Beauty Rose; Giant Crimson, crimson, maroon centre; Fez—small, turkey red bell flower. (Meehan)

Lychnis Haageana varieties. (1) *grandiflora* unit, fringed apricot colored flowers, and (2) *grandiflora alba* white. Also *L. Senno*, a Japanese species reintroduced. Brilliant crimson. (Dreer)

Lychnis Arkwrightii. Hybrid of *chalcedonica* and *Haageana*, and flowering in early summer in shades of scarlet and orange. (Knight & Struck; Farquhar)

Oxytropis hybrida var. *grandiflora*. From the Swiss Alps and revels in a hot, dry position, forming tufts of silver foliage from which issue many spikes of pure white pea-shaped blossoms. (Dreer)

Phlox pilosa splendens. One of the early flowering types forming a dense growing bushy plant, fifteen inches high, producing lilac-rose flowers in May. (Michell)

Phlox argillacea (the Silvery-lavender Phlox). Found in the sand barrens of the middle West. Various shades of white, pale lavender and lilac, May to August. Perennial adapted to dry situations. (Palisades)

Polygonum in variety; (1) *liehiangensis*. From northern China. Flowers from July until frost in sprays of creamy white. (2) *sericeum*. Flowers from May until June. Two feet high. Feathery spikes of white flowers. (Dreer)

Poppy, Oriental, var. *King George*. Petals are deeply cleft or fringed, not unlike those of the Parrot Tulip. Scarlet, with a black blotch at base of each petal.

Poterium obtusatum. Feathery dark pink flowers with a bright sheen. Flowers from July until September. (Michell)

Thalictrum dipterocarpum (Meadow Rose). Rosy purple; blooms from June to August already has been referred to in these pages. (Michell)

Trollius (Globe Flowers) in variety. Var. *Ledebouri*. Cup-shaped flowers, rich orange color; height of flower season May and June. Var. *pumilus yunnanensis*; Golden-yellow salver-shaped flowers. (Dreer)

Veronica spicata rosea var. *Erica*. Spikes of pink flowers on bushy plants 10 to 12 inches high during June and July. (Dreer)

Specialists in *Peonies* present new or rare varieties as the occasion offers. It is somewhat difficult to decide here just when a variety ceases to be a novelty in the broad interpretation. Nothing can be offered to the trade or public that is strictly new as it takes several years (five to ten) to get up a sufficient stock of a really new variety and by the time it is offered freely it is no longer really new, but may be rare. Equally some old varieties are still so rare that they become practical novelties if any grower is able to work up a sufficient stock. Each Peony grower has "up his sleeve" some few seedlings as yet unnamed and unimported among which are many of merit. Such a one as *Therese* (Dessert 1904) is unobtainable in any quantity at any price. There is offered in America this year (Farr) for example a group of eight *Peonies* of German origin, raised by Goos & Koenemann. These have been under trial and observation in this country for several years and in the trials of the American Peony Society were regarded with much interest. The reader may turn back to the issue of September, 1916, for other information on recent *Peonies*. Domestic raisers such as Shaylor and Brand offer their own seed as before.

Both German and Japan *Iris*es include a few newcomers. Perhaps the most interesting happening is in the introduction by Farr of a set of American raised named seedlings of the Japanese type, which will not be available for distribution till next summer. In the German section there is a golden-yellow novelty *Sherwin-Wright* (Dreer) supposed to be a chance seedling from the well known *Honorabilis*.

PLANTS FOR THE GREENHOUSE

FOR the conservatory and greenhouse, apart from the regular "florist's flowers" and Roses, etc., the greatest variety of new things is to be seen in (1) improved forms of the already popular ferns, some of which were illustrated in THE GARDEN MAGAZINE for last December—(2) additions to the family of splendid large-flowered hydrangeas of French origin, of which some notice was given in the Novelty Review of a year ago. Crotons are offered by one dealer in an assortment of twelve. All these are naturally of foreign origin. In flowering plants there is a new fringed strain in Chinese Primrose, Pink Pearl, and *Calceolaria* Cotswold. Hybrid, with flowers of lemon-yellow and gold to brown.

Buddleia asiatica. The white flowering, extremely fragrant, blooming December to April, which is only a greenhouse plant in the East, is recognized as a useful garden plant for Southern California. (Coolidge)

An American hybrid from the foregoing and *B. officinalis* is the winter flowering *Buddleia Farquharii*. The first authentic hybrid in the genus. The flowers are pale pink, fragrant and borne in long, cylindrical tail-like clusters.

Two *Snapdragons*, both pink, reflect popular fashion in floral colors. *De Soto* (Vaughan) is described as "Enchantress" pink and *Weld Pink* (Farquhar) is given a salmon shading to orange. Both are large flowered types, suitable for cut flowers.

AMONG THE ROSES

HERE we find a rich assortment of new things. The sensational *Lillian Moore* which won the Thousand Dollar prize at the Panama-Pacific Exposition, in the open garden trial, naturally claims the leading interest in the list of introductions from the Irish producers (to whom we all look each year). It was the winner in a contest of six hundred varieties. The originator's description is "pure Indian yellow with a slightly deeper centre." This is from Hugh Dickson. (Totty)

Other introductions of that raiser for this year include: *H. D. M. Barton* a bedding Rose of the type of Gen. McArthur. *Ethel Dickson* silvery-flesh reverse petals. This variety resembles *Mdm. Chatenay* in type. *Golden Spray* sending up long branching shoots. The flower in the bud state is a deep Marechal Niel yellow, long and pointed; but when open the bloom is practically a single, six inches across. *Ulster Standard* three inches in diameter, crimson, plants two feet in height.

From France we get *Madame Collette Martinette* (of Pernet-Ducher who gave us *Rayon d'or*; *Sunburst*; *Mrs. Aaron Ward*.) This latest aspirant to public favor is described as a rich golden-yellow in the bud which opens to a marvelous old-gold, and one grower says it fades less than any other yellow (Pierson, Totty and others). Another Rose classed in the yellow section is *Primerose* (Souper et Notting variety) reminding one of *Ophelia* in its habit and inflorescence but has considerably more apricot in the shadings. Another Pernet Rose—*Admiral Ward*. (Dreer) named for the well-known American amateur. A large globular flower of intermingled shades of fiery crimson red; foliage bronzy green.

A Rose of purely American origin is the variety *Los Angeles*, raised by Howard & Smith, of Los Angeles—hence its name. They describe it as a flame-pink deepening to coral

NEW
ROSES
AND
FLOWERING
SHRUBS



ROSE, H. T., MADAME COLLETTE MARTINETTE (by Pernet) is a new claimant for favor, as a yellow that bleaches but little (Totty, Pierson, etc.)

ROSE LILLIAN MOORE, H. T., which won the Thousand Dollar prize at San Francisco last year, Indian yellow with deeper centre (Totty)



ROSA HUGONIS, or Father Hugo's Rose, is a new species from western China. Flower clear yellow, appearing early in the season (Conard & Jones)



Left: ABELIA GRANDIFLORA, a shrub that is being recognized for the South; pink flowers all summer. Right: SPIRAEA HENRYI, one of the newest Chinese introductions and an addition to the spring garden flowers, white (Farquhar)



DEUTZIA DISCOLOR, Chinese, flowers white, large appearing in June, and a new Pearl Bush (EXOCHORDA GIRALDI WILSONI) on right with short stalked flowers in March. Leaf stalks green (Farquhar)



HYBRID BUSH-HONEYSUCKLE, LONICERA NOTHA, yellowish pink flowers in May, followed by red fruits in July and August (Farquhar)



DEUTZIA LONGIFOLIA VEITCHII is excellent for the cool greenhouse or open air in the South. Large white flowers in dense Corymbs (Farquhar)



BUSH-HONEYSUCKLE (L. amoena Arnoldiana) with pink flowers, very graceful. A garden hybrid (Farquhar)

and shaded gold long pointed in the bud. This Rose, no doubt, will be largely grown this year, and is being offered by the principal growers.

Other H. T. novelties in which it will be observed shades of yellow predominate, include: *Edward Bohane* (Dickson & Sons) crimson orange; *G. Amedee Hammond* (Dickson & Sons) cadmium yellow or apricot, shading to buff; *Margaret Dickson Hamill* (Dickson & Sons) straw yellow and carmine shades; *Mrs. Mackellar* (Dickson & Sons) yellow, fading to almost white. *Aladdin* (W. Paul) coppery-yellow, changing to orange-yellow. *Cheerful* (McGredy) pure orange. *Circe* (W. Paul) flesh white shaded carmine. *Clarice Goodacre* (Dickson & Son) ivory, with zones of chrome. *Cleveland* (Hugh Dickson) coppery-yellow, flushed reddish copper. *Crimson Emblem* (McGredy) glowing crimson. *Donald MacDonald* (Dickson & Sons) orange-carmine. *Imogen* (W. Paul) orange-yellow, shading to pale yellow. *Isobel* (McGredy) carmine red, tinted orange scarlet; yellow centre. *Flame of Fire* (McGredy) deep orange. *Gorgeous* (Hugh Dickson) orange-yellow, veined reddish copper. *Modesty* (McGredy) pearly-cream, flushed rose. *Miss Stewart Clark* (Dickson & Sons) solid golden-yellow. *Mrs. Mona Hunting* (Hugh Dickson) chamois-yellow. *Mrs. Bryce Allan* (Dickson & Sons) carmine rose, lightly perfumed. *Mrs. Glen Kidston* (Dickson & Sons) cinnamon-rosy-carmine; type of Lady Pirrie. *Nellie Parker* (Hugh Dickson) creamy white, flushed pink. *Prince Charming* (Hugh Dickson) reddish copper. *Red Cross* (Dickson & Sons) orange and red. *Tipperary* (McGredy) golden-yellow in the bud. *Ulster Gem* (Hugh Dickson) primrose yellow. *W. C. Gaunt* (Dickson & Sons) deep brilliant red.

Paul's Scarlet Climber (Wm. Paul & Son, 1917) has medium sized semi-double flowers, scarlet shaded with bright crimson which color will not burn or fade until the petals fall. A strong climber and perfectly hardy. The preponderance of yellow shades is noticeable. The foregoing are listed largely by Dreer, some by Harris and a few by other rose growers.

A new Rose species, which might perhaps more properly be considered as a flowering shrub is *Rosa Hugonis* (Conard & Jones) probably the first Rose to bloom in the spring, coming into flower from ten days to two weeks ahead of the early Harrison's Yellow. The color is intense canary-yellow, very bright and attractive, and the plant is noteworthy all the growing season by reason of its dainty foliage. The young shoots are rich crimson in color. Reference to this hardy Chinese introduction has been made in an earlier number of THE GARDEN MAGAZINE.

CHRYSANTHEMUMS FOR YOUR GARDEN

LAST season was characterized by wonderful weather for Chrysanthemums, even through the Middle West, where for many previous autumns a killing frost early in the season destroyed any chance of successful growing in the garden.

The Singles were particularly favorites. Alongside of the Singles old-fashioned little Pompons are simply lost as they are so modest in growth and while one gets the same colors the ideal varieties for the hardy garden are the sorts that flower from September 25th to November 15th giving an average of six or seven weeks of bloom. This condition is found in the modern Early Flowering strains. These are not so hardy as the Pompons, how-

ever. The ideal way of course, is to have a bed embracing all the types—Early Flowering, Singles, and Pompons; then when the Early Flowering are cut away the Singles are coming into their own; and when these are past and gone the Pompons remain to succeed them.

The Early Flowering type this year is enriched by three additions, all seen at the last season's fall shows (Totty) *Mrs. Harrison Craig*, in which the rays are brilliant orange with a dust-like crimson shading over this yellow color. *Mrs. Dean Emery* is another novel color, chamois-pink. The last—but not the least—is *Secretary Reagan*, a milk white; so distinct as to petalage as to be sometimes mistaken for a Show Dahlia.

Some of the novelty Singles (Totty) are: *Carlotta*, massicot-yellow; dwarf. *H. Marie Totty*, brilliant crimson with scarlet shadings and yellow around its green centre disc; wonderful color but cannot be recommended for garden growing, but any one who has a cold-house can grow it with splendid results. *Henrietta Taylor*, pale-lavender and white. *Millicent Piper*, pure white, flowering early in October. *Rose Walker*, bronzy orange tipped blood-red, with petals twisted on the end like a cactus-dahlia. *Mrs. Albert Phillips*, deep lavender and cream. *Veronica*, pale-pink and snow-white combination. *Vivian Cook*, magnificent yellow. *Miss Ruth S. Bergen*, bright amaranth with straw-yellow zone in centre. *Charlotte Waite*, a marvelous rose-pink in color, Mr. Bergen of Summit, N. J., who gave us Mrs. Francis H. Bergen, this year has another fine variety, *Miss Ruth S. Bergen*.

Among other Singles that were favorably received last fall, are the three Pierson novelties: *Jane Ingalls* a seedling of a peculiar shade of reddish-bronze. *Katwood* a clear, even shade of pink, spoken of as among the best pink singles for middle of November cutting. *Pink Simplicity* is a flesh-pink, for exhibition use or for general cutting.

There are a great many Pompon varieties that bloom early enough to give the grower much satisfaction and will flower until they are buried by the snow but when they bloom so late that the foliage is disfigured by the frost they are not so pleasing to the grower as varieties he can pick with good foliage, flowers, etc. *Lillian Doty* a variety that nearly everyone knows is one of the finest pink Pompons to-day; and this year's novelty *White Doty* (Scott, Totty, and others) will be as popular as the pink variety. New sorts in Pompons are not as numerous as in the other types. The little miniature flowered yellow Pompon "Baby," especially popular under glass, gives us two promising seedlings—*Little Gem* (Smith) lavender pink, a little larger than its parent, about one inch in diameter. This was the highest scored seedling at Cleveland, Chrysanthemum Society of America, 1915. *Hilda Canning* (Pierson) is the other seedling from the same parent of which it is a bronze counterpart.

CHRYSANTHEMUMS FOR THE GREENHOUSE

THE year 1916 was conspicuous in the Chrysanthemum world, by the exhibiting of the Japanese Anemone types—known as the "Tuxedo Collection." These were raised by Mr. Carl Schaeffer, Supt. for Mr. Richard Mortimer, of Tuxedo, N. Y., and created a sensation in the Philadelphia, New York, and Tuxedo Shows. Mr. Schaeffer is now

more than eighty years of age and has made a specialty of this type for more than fifteen years. These varieties are now introduced to the public. Chrysanthemum experts pronounced these Anemones as one of the remarkable "breaks" in Chrysanthemum growing of recent years. (Totty)

A named Anemone Chrysanthemum is *The Crest* (Smith), maturing the end of November. The guard petals are long, when grown cold can be had after Christmas; pure white, showing traces of pink with age.

The Large-flowered Chrysanthemum for cultivation under glass (cutflowers) comes to us in about the usual number of claimants—it would seem that each year sees a score or so offered and a corresponding number of older ones just drop out. Only at rare intervals does a "William Turner" appear. Among this season's novelties as offered by two leading dealers are:

Barbara Davis, a seedling of Brutus and Indian Summer and has the dwarf habit of the former; reddish bronze. *Margaret Waite*, a deep pink sport of the well-known late pink Single, Mrs. E. D. Godfrey, but has more petals. Can be had in December. *Romaine Warren*, orange yellow or light bronze; a clean grower of medium height; when finished it shows an open centre of dark orange color. *Virginia Holden*, deep, velvety crimson; flower well formed, small. It makes a good quantity of blossoms to the spray. (Pierson)

Miss Anola Wright, rose pink, resembling Chieftain or Doctor Enguehard. Eight and one-half inches or more in diameter; buds selected August 30th or soon after, produce the best blooms. *Helen Lee*, color a delicate flesh pink of Enchantress Carnation shade. First week in November. Four feet. Select bud the last of August. *October Herald*, orange yellow; best blooms from buds selected August 25th; grows eight inches or more in diameter; $4\frac{1}{2}$ to 5 ft. tall from May planting. *December Queen*, the latest yellow approaching orange, slightly penciled with red; blooming Nov. 25th to Dec. 5th; of unusual size considering the lateness, being 7 to 8 inches in diameter; double to the centre from buds selected September 20th to 30th. Four feet from June planting. *Yondota*, a rose-pink, entirely free from the objectionable magenta shade so often found in pinks. Blooms October 25th from buds selected August 25th; 5 ft. from May-planted stock. *Smith's Imperial*, incurved white, fully developed October 22d, from any bud after August 25th. Dwarf habit, $4\frac{1}{2}$ ft.; from May planting will produce three to four perfect flowers per plant for those who prefer them only medium size. (Smith)

THE NEWER HARDY CLIMBERS AND TRAILERS

THREE ornamental-leaved Ampelopsis (Farquhar) (two of which are not adapted to the colder regions) merit attention:

Ampelopsis Henryana (*Vitis Henryana*.) Resembles our native woodbine. The ground color of the leaves is dark velvety green, with the mid-rib and principal veins silvery white. The foliage changes to a vivid red in fall, mid-rib and vein remaining white. Tender.

Ampelopsis Thomsonii (*Vitis Thomsonii*.) The leaves are greenish purple above, and bright claret color beneath; changing in the autumn to rich red. Tender.

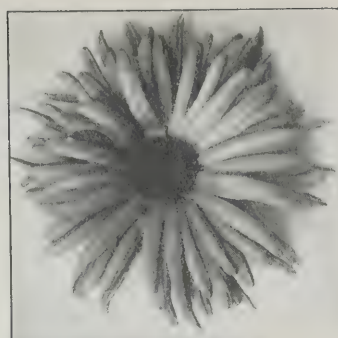
A third which is hardier—*Ampelopsis acutifolius* var. *dissecta*, growing 8 to 10 ft. tall, has bright blue fruit.



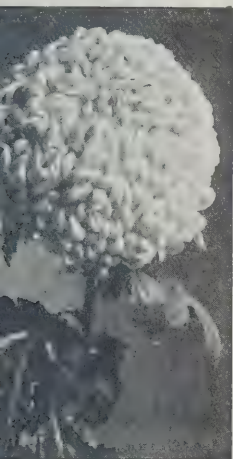
CHRYSANthemum PINK SIMPLICITY (Single) Flesh pink in large sprays and large individual flowers. For exhibition and general cutting. (Pierson)



CHRYSANthemum MRS. HARRISON CRAIG (Early Flowering) has a curious combination of colors—orange with a dust-like crimson shading. (Totty)



CHRYSANthemum MARGARET WAITE (Single). A deep pink sport from Mrs. E. D. Godfrey with more petals. Can be had in December. (Pierson)



CHRYSANthemum HELEN LEE (Curved) Gives blooms first in November. Delicate flesh color. (Smith)



CHRYSANthemum YELLOW NORMANDIE. Deep golden yellow sport of Normandie, and otherwise like that. (Pierson)



CHRYSANthemum KATEWOOD (Single). An even shade of pink for mid-November cutting. (Pierson)



CHRYSANthemum YONDOTA (Early Flowering) Rose-pink, for cut flowers; under glass. (Smith)



CHRYSANthemum LITTLE GEM (Pierson) Lavender pink seedling in the yellow Baby, flowers one across. (Smith)



CHRYSANthemum ANOLA WRIGHT (Commercial In-curved) Very large blooms of dull rose pink, with slight violet cast. (Smith)



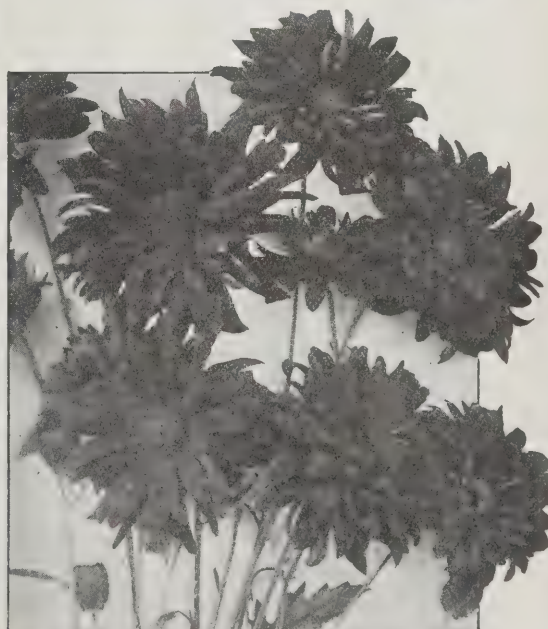
CHRYSANthemum MISS RUTH S. BERGEN (Early flowering) Grows six feet high. Color amaranth with yellow about centre. (Totty)



CHRYSANthemum ROMAINE WARREN (Early Flowering) Large bronze, and when mature shows open centre of dark green. (Pierson)



CHRYSANthemum MRS. ALBERT PHILLIPS (Semi-single) Deep lavender. One of the earliest blooms, being fully open on October 5th. (Totty)



CHRYSANthemum VIRGINIA HOLDEN (Early Flowering) Moderate size but one of the richest colored flowers; deep velvety crimson.

A New Trumpet Vine (*Bignonia radicans* var. *aurea*) is a yellow-flowered counterpart of the old favorite with red flowers (Dreer).

Clematis koreana. Resembles the yellow globe flowered *C. tangutica*, but has glaucous foliage and flowers of a copper-yellow.

Evonymus radicans Silver Gem (Farquhar), the best variegated form of the climbing *Evonymus*, from the world famous house of James Veitch & Sons, London, and the allied *Evonymus kewensis* (Bay State) a very fine-leaved plant [in reality the juvenile stage of *E. radicans* var. *vegetus*], are useful for rockeries and rock-gardens. Both are quite hardy.

Lonicera Henryi. This new Honeysuckle is the only really evergreen twining vine hardy in eastern Massachusetts. It is a free-growing plant, with dark green leaves and black fruits, and makes a delightful tangle on rocks or tree stumps.

TREES, EVERGREEN AND DECIDUOUS

SIX New Chinese Spruces (Farquhar): *Picea asperata* and vars. *notabilis* and *ponderosa*; *P. Balfouriana*, *P. montigena*, *P. retroflexa*, all recent introductions of E. H. Wilson are among the real novelties which will appeal to the interest of the skilled craftsman who likes to possess the latest introductions and who is willing to experiment over a long period of time.

A beautiful new Silver Birch from the borders of Thibet is *Betula japonica* var. *szechuanica*, with relatively thick, dark green leaves, broadly triangular in shape and retained on the tree late into the fall; said to be perfectly hardy and very quick-growing. (Farquhar)

Cercis canadensis alba is, as the name implies, a white flowered form of our common Red-bud—a White-bud, in fact. (Meehan)

Eucommia ulmoides (the Hardy Rubber Tree). From central China, growing 40 to 60 ft. tall, with elm-like leaves.

Phellodendron sachalinense is a broad-shaped tall stemmed tree, with attractive black fruit and feathery foliage. The hardiest species of this Chinese genus, quick growing and enduring adverse conditions well. (Moon)

A Dwarf Pin Oak, is a natural variation of our native tree discovered in the nursery rows and preserved by grafting. (Meehan)

A decided effort is being made to put before planters the merits of nut trees as combining both useful and ornamental qualities. The novelty feature here is not in the variations or even kinds of nut bearing trees, but in the recognition of varietal adaptations and differences. Specialists offer lists of walnuts, filberts, almonds, pecans, etc., all of which are being planted in the East, and planters can now get from several sources English Walnuts, and Thin-shell Pecans true to name.

FRUITS AND BERRIES

A YEAR ago THE GARDEN MAGAZINE emphasized in particular the marked tendency of everbearing or continuous cropping strains. This has become so marked, that the *Everbearing Strawberry* which yields real berries from late summer till early winter has become a recognized factor in the fruit garden. For the home gardener the attractions of this particular type of berry admits no question. *Everbearing Strawberries* are a reality and a necessity. The Strawberry in general continues to crop up in ever-changing varieties year after year. A few favorites

remain as standbys and the home-gardener must needs try the newcomers season by season. *Big Late* (Kellogg) is a pistillate, deep scarlet fruit, which stands up well under rain.

Of four new Peaches, the *Rochester* is offered by all leading growers. In appearance a cross between Early Crawford and Elberta with more red on the yellow skin than Elberta; flesh yellow; freestone, early bearer. Ripens a short time before Crawford's Early and nearly two weeks earlier than Elberta.

Three other peaches (Munson) are: *Frank*, a yellow cling, ripening two to three weeks after Elberta. Globular, yellow, covered over with rich red. In Central Texas this variety has always set a full crop. *Millard* comes a week after Elberta. Red cheek, yellow skin and clingstone flesh. Nearly round, flesh firm and fine grained. *Barbara* comes in a week after Frank. It is a highly colored, yellow fleshed freestone. Round shape, flesh firm, bright yellow. Spicy quality of the Bell, good for canning.

Plum Mammoth Gold. Young bearer and suitable for the home table because it ripens very early. Red blushed, yellow cheek. (Stark) Four plums (Fraser) are; *Sannots*, though unattractive in appearance is of good flavor and quality. The tree is small, fairly vigorous grower, and ripens quite late. This is one of the finest French plums which has somehow been overlooked. *Miller's Superb* one of the highest flavored yellow plums grown. *French Damson*, the largest of the Damsons. *Middleburg*, very late, a dessert and cooking fruit which lacks a little in appearance, but appeals to the home gardener.

Cherry Stark Gold. A sweet cherry of golden-yellow color. Ripens about two weeks later than Early Richmond but will hold on the tree ten days after ripening. (Stark Bros.)

Apple Shiawassee Beauty originated in Shiawassee County, Michigan, and is of the Fameuse or Snow type. Resembles the McIntosh Red, as regards quality, but instead of being covered with bright red, it is striped red on a yellow base. November to January. (Green)

Raspberry Syracuse is a bright red variety particularly desirable for the home garden for the reason that while not an *Everbearing* variety, it sometimes continues fruiting abundantly for a month or even longer. Originated in Syracuse, N. Y. (Green)

Currant Diploma is of large size, a vigorous grower, and abundant cropper of bright red fruit, borne in long clusters. (Green)

BEANS AND PEAS

THE last three years have been very poor years for developing new strains of beans. Moreover, the New York State crop was nearly ruined by a freeze late in September and such late varieties as Thousand-to-One, Refugee, and Hodson Wax were entirely ruined. Beans grown under irrigation in the Far West gave rather a disappointing yield. Some crops, on the other hand, are exceptionally good, but the supply of garden beans, as a whole, is much shorter than we have ever before known it.

The bean that is making the most rapid strides toward popularity is *Surecrop Stringless Wax*. This is very much like New Kidney Wax in size and shape of the pod, character of plant and season of maturity, but seems to be more hardy and more prolific, while on the

other hand, the New Kidney Wax has an advantage in having nearly all white seed instead of black.

Laxton's Superb Pea, offered for the first time by the leading houses, is a dwarf with large pod somewhat resembling Pioneer, but more curved. If cooked young, the quality is up to the usual standard of smooth or round seeded kinds. One of the really good new peas, to be offered later, which has been coming to the front during the last few years, is *World's Record*, a little earlier than *Gradus* and fully equal to it in quality, with pods almost as large.

Despatch (Burpee) is a first-early round-seeded variety suitable for the early market. A little later than Alaska but more prolific. Vine three feet high.

Marvelous (Burpee) has vines eleven inches in height, with rich green foliage; pods produced in pairs, averaging three and one-quarter inches in length and usually containing eight grains. It matures about the same time as *Little Marvel*.

Market Surprise (Dreer) is an early pea of English origin. The plant grows to a height of 30 inches, and is very thrifty and prolific. It matures the crop in sixty-five days and is suitable for early planting.

OTHER VEGETABLES

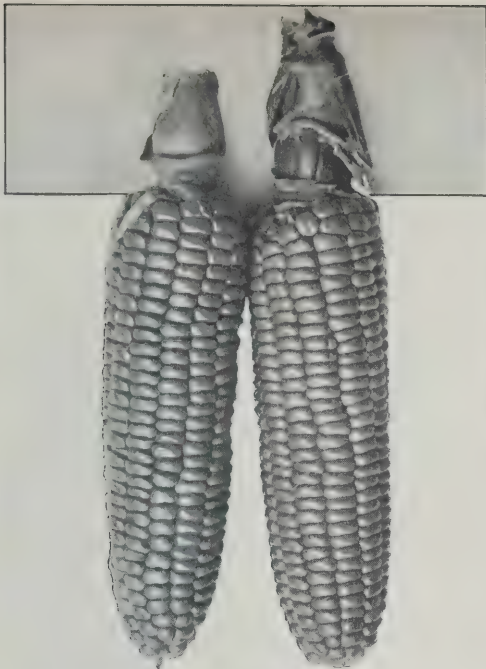
WHAT has been said in connection with beans is also true of corn and some other staple vegetables have suffered so that a very short supply is in sight. The reader will find an appraisal of the newer varieties of Sweet Corn elsewhere in this issue.

Several seedsmen offer new strains of many standard varieties of the favorite garden vegetables, and special attention is given to types suitable for forcing, as *New Amsterdam* and *Perfect Forcing Carrots*, and *Dark-Leaved Globe Beet*. We are recording *Lettuce Unrivalled* as an all season possibility of butter-head type and similar to Big Boston, but lighter. Other offerings listed are frequently repetitions of last or a recent season.

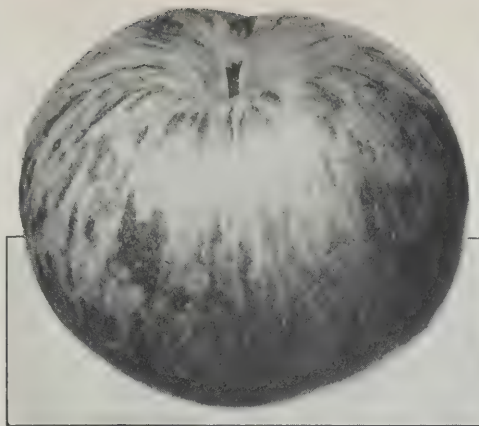
For the first time in ten years, Livingston offers a new Tomato, *Many-fold*. A bright red sort of prolific character. Fruits are generally borne in clusters of four to five. In season of maturity it seems to be a second early, coming before Stone, which it is said to almost equal in size.

Another tomato novelty is *Red Sunrise* (Wing) frankly described as a strain of Earliana selected for greater yield and earliness.

Under the name of *Honey Dew Melon* (or some slight variant) several firms are offering strains of the round yellow kind, green flesh, aromatic melon that has within a year or so become fairly familiar in the large cities during the winter time, as California Casaba. This is a high quality fruit, weighing about eight pounds each, round to oval, thick meated with small seed cavity. Fruits may be laid away for use late in the fall on account of the hard shell. Adapted to all places of the latitude of Philadelphia to California, but is not recommended for locations where the growing season is short. Mr. E. Stanley Brown, Horticulturist, East Moriches, N. Y., recommends (through Dreer) a *yellow-fleshed Ice Cream Melon* as the "par excellence" of all *Watermelons*. The flesh is bright golden-yellow, skin beautiful green and shape elongated. Placed carefully on the barn floor, away from the chilly blasts, they keep well into the winter.



SUGAR CORN ARISTOCRAT (Extra early). Ripening with Cory. Raised at Newport, R. I. The grain is broad, grows 4-6 ft. high (Dreer)



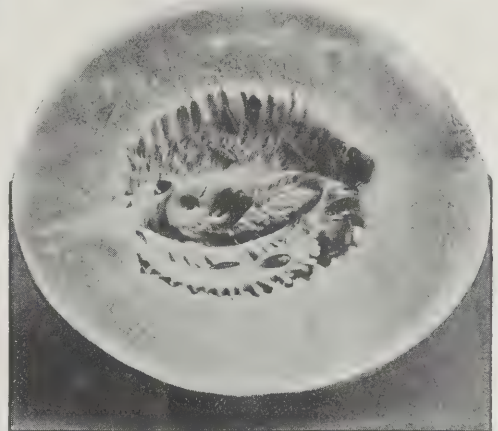
APPLE SHIAWASSEE BEAUTY, of the Fameuse type, originated in Michigan. Striped red or yellow. Season, November to January (Green)



FORCING CARROT represents a type that is excellent for the home garden to be grown in frames and eaten when small (Dreer)



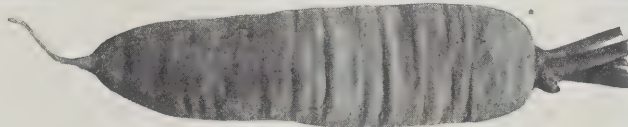
PEACH, ROCHESTER (Yellow, freestone). Two weeks earlier than Elberta and is possibly a cross of that and Early Crawford. Bears early (Green)



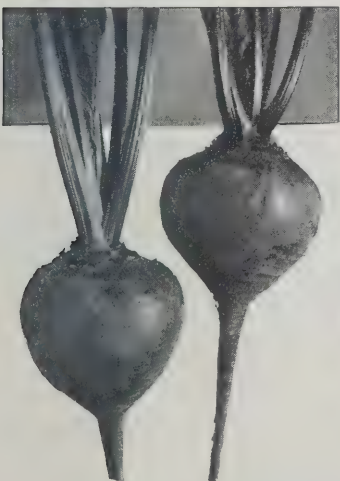
FORCING CARROT. New Amsterdam makes roots about four inches long, and small core; bright orange red. Foliage about six inches high (Burpee)



LETTUCE BRITTLE ICE recommended as a hot weather crisp-head variety in the home garden (Burpee)



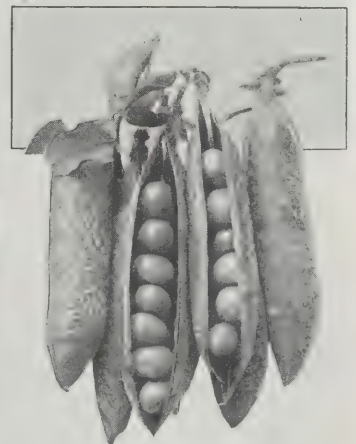
MELON HONEY DEW. Of the Cassaba type, round, yellow, with hard rind and so keeps well into winter. Adapted to the warmer sections with a long growing season (Dreer)



DARK-LEAVED GLOBE BEET is a representation of the forcing type of vegetable. This is a strain selected for deep color (Dreer)



RASPBERRY SYRACUSE. Originated in Syracuse, N. Y. Bright red, and produces fruit over a period of four weeks (Green)



PEA MARKET SURPRISE. A dwarf, round seeded, extra early, maturing in sixty-five days. Grows to a height of thirty inches. Prolific of pod, much like Little Marvel



Double Morning Glory Snow Fairy, the characteristics of which are clearly shown in the photograph. (Burpee)

HARDY SHRUBS

CHINESE introductions predominate—this is but a natural evolution of events. Notwithstanding the fact that a great many American shrubs have not yet been brought into general cultivation, still the attention of plant collectors generally has been centred on the recent introductions of western China. The demand that has been expressed by the public is meeting its natural response in the trade. As time goes on we will see more and more of these Asiatic introductions which past experience has proven are so admirably adapted to the American garden. It is hard to draw a strict line here as to what is positively new or practically new. From the viewpoint of the gardener, a plant that may be as old as the hills, yet which has not been actually



Buddleia Farquharii, with pale pink, fragrant flowers, is a tender hybrid for the greenhouse. (Farquhar)

introduced as an article of commerce, is new, and there is indeed a vast wealth of material that is available under this category. A few things that certain specialists have offered in limited quantities only during the last two or three years are now more widely distributed and are being offered generally. This is true of Rocksprays (*Cotoneaster*), and some others. In the following list of notable offerings we cannot do more than make a selection of the most distinctive types. Some of these have been tried in a limited way already and have earned their reputations; others are yet in the experimental stage.

Abelia grandiflora, while not a new plant, has but comparatively recently had its value recognized in landscape work for the Southwest. By pinching in the ends of the strong shoots during the summer, a compact, dense plant can be made, with glossy leaves all winter, with red tinged in the young branches. Flowers white, tinged with pink from May onward.

Berberis brevipaniculata. A bush 4 to 6 ft. tall with small, wedge-shaped leaves clustered together. The small yellow flowers are produced on erect panicles 3 to 5 in. long. These are followed by masses of salmon-red fruits in early Autumn.

Berberis Maximowiczii. Resembles *B. Thunbergii* in habit and fruits, but has larger leaves.

Berberis stenophylla. A hybrid between *Berberis Darwini* and *Berberis empetrifolia*. An evergreen shrub with golden-yellow flowers and deep green leaves.

Berberis Wilsonae. A deciduous shrub with small, glossy green leaves with reddish autumnal tints in the fall. Fruit round, coral red. Much branched stems covered with long spines. Almost evergreen in California.

Buddleia yunnanensis. "Has a trifle wider leaf than other Buddleias. The blossoms are soft lavender, with brownish yellow eye. Also offered in a white variety, *alba*." (Knight & Struck). [There are two plants which might answer to the name of *B. yunnanensis*. One is *Buddleia yunnanensis* Gagnepain and the other is *B. nivea* var. *yunnanensis* Rehd. & Wils. The first one is similar to *B. Lindleyana*, but differs in its denser and shorter spike and shorter and straight corolla. It has rather small and nearly smooth leaves. The other has the under surface of the leaves, the branches and the inflorescence densely woolly; the leaves are 6-8 inches long and the spike is about of equal length or a little longer. The *B. nivea* var. *yunnanensis*, a vigorously growing shrub with rather stout upright branches, is tender in the North—Ed.]

Cotoneaster divaricata. A handsome shrub, erect, spreading and much branched in habit, with leaves turning crimson in the Fall, and bearing in profusion scarlet fruits, which are retained through the winter.

Cotoneaster horizontalis var. *perpusilla*. A prostrate shrub for rockeries and for clothing banks; has lustrous green leaves, turning crimson in the fall and bright scarlet fruits, which remain on the plants until the spring.

Cotoneaster salicifolia var. *floccosa*. With distinct, narrow leaves, and more spreading of habit than the old type. Fruit scarlet, freely produced.

Daphne collina introduced from Germany a few years ago. More woody than *Daphne cneorum*, standing up in a thick compact bush. At maturity it will probably reach a height of from two to three feet. The blossom strongly resembles *cneorum*; a little deeper shade of pink. Blooms in June, fragrant.



Glen Eyre, one of the improved forms of the New England Aster. Color bright pink, shading to lavender. (Pierston)

Deutzia crenata var. *magnifica*. A hybrid between *crenata candidissima* and *Vilmorinae*. Pure white flowers about the end of May.

Deutzia Schneideriana var. *laxiflora*. A hardy *Deutzia* from central China grows 4 to 5 ft. high, with large pyramidal trusses of pure white flowers.

Elsholtzia Stauntoni. While not quite new, is valuable because it blooms in the autumn. Like the majority of the fall-blooming shrubs, it flowers on the current year's wood. It attains a height of four to five feet, and forms dense spikes of rosy-purple bloom. The whole plant has an agreeable, minty odor.

Enkianthus campanulatus. A hardy shrub from central Japan, grows six to twelve feet high and is very bushy. The bell-shaped flowers, borne in racemose clusters, are yellow, deeply stained and striped with salmon and crimson. Leaves turn color in autumn.

Exochorda Giraldii var. *Wilsonii*. A large bush or small tree covered in spring with racemes of pure white flowers which are larger than those of the well-known type.

Forsythia suspensa var. *atrocaulis*. Differs chiefly in the purple color of the young growth, and in the dark purple or nearly black stems.

Hibiscus syriacus var. *William R. Smith*. A new white Rose of Sharon, flowers fully four inches in diameter, opening out flat.



The new Pernetiana Rose Admiral Ward, is a blending of fiery crimson shades. (Dreer)

Hypericum Arnoldianum, *Kalmianum*, and *lobocarpum*. These midseason flowering shrubs with clear yellow flowers in masses, grow four to six feet tall and as much in diameter; they are very densely branched.

Ligustrum acuminatum var. *macrocarpum*. A hardy Japanese Privet in habit like *L. ibota*, but with very large shining black fruits.

Lonicera bella. Bush-honeysuckle, hybrid between *L. tatarica* and *L. Morrowii*. It grows eight to ten feet tall and more in diameter. The flowers vary from pure white to pink, and the red fruit ripens in August.

Lonicera muscoviensis. A hybrid Bush-honeysuckle 12 feet high with arching and spreading branches; flowers in abundance and masses of crimson fruit ripening early in July. Hardy as far north as Ottawa.

Lonicera tibetica. Compact hardy shrub, four to five feet tall, with spreading, drooping branches; gray-green leaves, white on the underside; flowers pink, fragrant; bright scarlet berries.

Loropetalum chinense is an interesting, low growing shrub that must ultimately find a place among our finest ornaments. Especially adapted to the Pacific slope.

Philadelphus Hybrids: Virginal, one of the

best of Lemoine's hybrid Mock-oranges. Bouquet Blanc (Lemoine), which looks like a bank of feathery snow when massed.

Philadelphus incanus. Bush growing six to ten feet tall, much branched, twiggy in habit and floriferous. The flowers 1½ in. in early July. The leaves are woolly, ovate and retained well into the late fall.

Philadelphus sericanthus var. *Rehderianus*. Mock-orange growing ten to twelve feet tall, with large flowers freely produced in July.

Philadelphus Falconeri. A wide-spreading shrub up to eight feet tall, with slender arching branches, laden with masses of large, white, fragrant flowers in June.

Philadelphus Magdalenae. One of the prettiest and neatest of the Asiatic Mock-oranges, forming a much branched bush six to eight feet high. Flowers mid-June. Quite hardy.

Potentilla Veitchii. Grows two to three feet tall, with sprays of pure white flowers from May until late autumn.

Potentilla fruticosa var. *splendens*. Has bright yellow flowers. Well adapted for rock gardens.

Spiraea Henryi var. *notabilis*. Bush three to six feet tall. Flowers white, in large trusses.

Spiraea Rosthornii. Four to six feet tall,

with much branched axillary corymbs of pure white flowers.

Stranvesia glaucescens and *S. undulata* are two evergreen shrubs of special merit to the Pacific coast.

Syringa tomentella. A new species of Lilac from the borders of China and Thibet; grows ten to fifteen feet tall and produces pale pink, fragrant flowers in branched trusses ten to twelve inches long.

Viburnum Sargentii. This Asiatic relative of the American High-bush Cranberry is the most beautiful of the *Opulus* group. White blossoms are followed by masses of red fruits, which are retained late into the fall.

Viburnum foetidum var. *rectangulum*. A low-growing evergreen shrub useful as a hedge plant or a small specimen ornamental in the warmer sections of the country and on the Pacific slope.

The foregoing are offered by several firms as Farquhar, Cooledge, Meehan, A. N. Pierson, Mount Desert, Moon, Dreer, etc. and may be obtained from possibly any of the leading dealers in hardy shrubs.

[NOTE: Reference to Summer Flowering Bulbs and Roots is deferred till May. Tools and Accessories next month.—Ed.]

Treatment of the Long Narrow Lot

RUTH DEAN
Landscape Architect

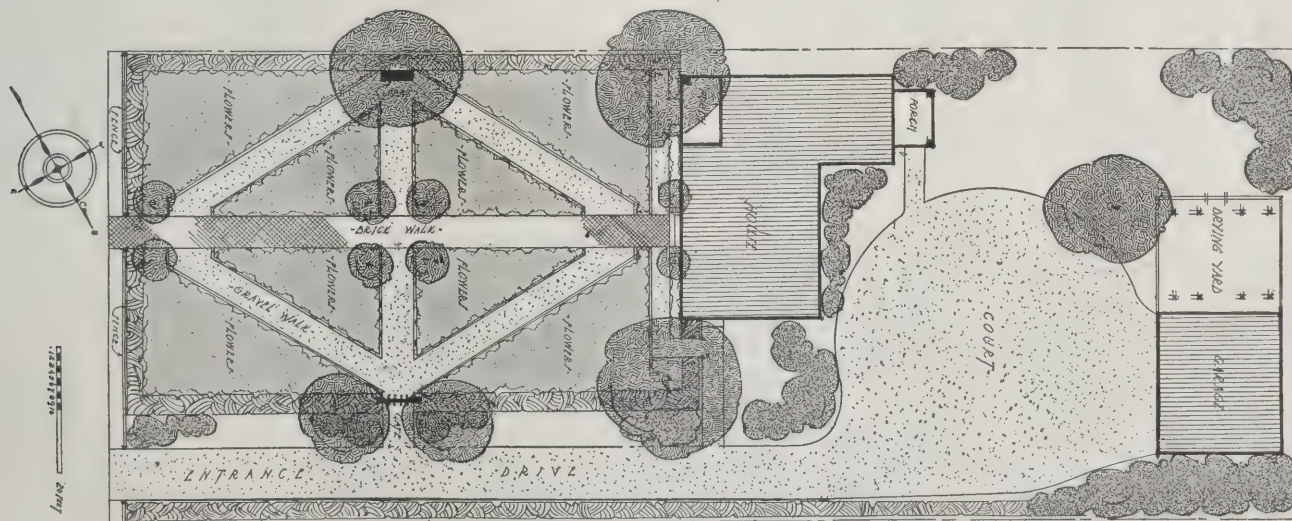
A PRACTICAL SOLUTION OF A TYPICAL SUBURBAN PROBLEM, THE HOUSE PLACED WELL BACK

IT WAS a Victorian fashion to set the house far back in the yard, and it was a Victorian as well as a Colonial fashion to have a garden in front of the house. The door-yard gardens of the two periods differed chiefly in their depth, that of the later gardens being as a rule much greater, because of the distance between house and street. They varied also a little in content, for by the "eighteen-thirties" perennials and Box had lost some of their

without which a rectangular stretch of lawn would be dull and uninteresting. A central walk, if there is one leading up to the front door, becomes a long lane bordered with flowers, and there is something very inviting about such an approach.

In this plan the whole front yard is filled with flowers and the very simple, design depends for its success upon big masses of them which grow up to hide one path from another.

needs privacy and this the fence and hedge are designed to accomplish. A hedge also shuts off the drive that runs along one side of the property to a garage in the extreme rear, and in front of this building, the turn around, being somewhat short in radius, is left in gravel for its full width of forty-eight feet. As no garden is a success without a few big trees, to give it dignity, two Oaks or Hard Maples or Elms overarch the gate in the



popularity to bedding plants and annuals. But enthusiasm for newcomers can never long overshadow esteem for old standbys, and we find ourselves now trying to make room for all the kinds that clamor for a place—the latest improved varieties of this year's flower books by the side of old years' favorites.

The garden in front of the house adapts itself well to the uses of a long narrow lot, for the too obvious shape of the lot is disguised by the varying heights of flowers and bushes,

A treatment quite as pleasing would be to border the surrounding hedge with wide flower beds, leaving a central panel of green cut in half by the entrance walk, running between an avenue of small trees like Hawthorn or Dogwood. A foot-path overarched in this way by the branches of some small graceful tree, or bordered straight to the door with flowers, has an intimate feeling, a pleasant air of personally conducting.

A garden in front of the house of course,

hedge, and one twisted gnarly veteran shades the seat at the opposite end of the path.

The four smaller trees at the crossing of the paths and the two at the gate might be Hawthorns or Magnolias or if one's choice is for evergreens, *Retinisporas* or old Box, though this is precious and hard to find. The topiary work of old gardens would fit well here, with four tidily clipped birds or urns, to mark the corners, and add the charm of their clumsy playfulness.

A Garden Made on a Rock Ledge

E. S. FARRINGTON
Massachusetts

HERBACEOUS BORDERS ESTABLISHED AND EVEN WATER PLANTS SUCCESSFULLY GROWN ON A SITE OF SOLID ROCK BY BLASTING OUT POCKETS FOR SOIL, ETC.

WHEN Mr. William Sherman built his all-year house overlooking a Massachusetts bay, he had to blast out every foot of the tellur excavation. When he came to make his garden he found that every inch of his lot was underlaid with a solid ledge a hundred feet or more deep. Could anything have been less promising? Yet the Sherman gardens have become so charming that they are famous in a local way.

There being rocks everywhere, Mr. Sherman simply made them the basis of his gardening scheme. What most people would have considered an insuperable obstacle, he found to be an asset. In other words, he turned his whole place into a rock garden, with a lily pool as its central and crowning feature. To begin with, the lot, which is 150 feet deep with a frontage of 83 feet, was completely covered with Blueberry bushes and Horse Briers, which had found enough thin soil on the surface and in the rock crevices to cover their roots.

When this tangle had been cleared away, it was found that the ledge made a long slope at the back of the lot from one side to the other. A certain amount of leveling was done,



Hardy Waterlilies flourish in this artificial pool on a ledge of rock

with a little blasting at one corner, but it was some time before the possibilities of the place began to shape themselves in the owner's mind. Almost at the beginning, however, he made a little bird bath near the house by stopping up one end of a crevice between two rocks, and filling it with the hose. Soon robins, bluebirds and other feathered visitors began to come in large numbers, and as many as 25 birds have been counted in the yard at one time.

The next season another natural hollow, but a larger one, was utilized to create a lily pool, which proved such a delight that a

much larger and more elaborate pool was soon planned. This second pool was made on the top of a long sloping rock that projected itself above the ground well toward the rear of the lot and had always been very much in evidence. It required a man with imagination to visualize that piece of granite transformed into a beautiful pool of still water, but the transformation was made and wholly by the labor of Mr. Sherman and his two sons. Of course it required more than a snap of the finger and a "Presto, change" act. It necessitated the building of a concrete wall three feet high and a foot across the top for one thing, and that was done with the aid of boards set up on the rock for a mould. In order to create a more natural effect on the side nearest the house a number of large stones were set up and cemented together. At the upper end only a few small stones were needed, because of the ledge's slope.

When the pond had been finished it was 25 feet long and about 15 feet across at the widest point, but was quite irregular in outline, as it conformed to the shape of the boulder on which it was built. It was fully two feet deep at the lower end, but only six inches at the end opposite. Prepared soil was placed in one part of the pool and a few Lilies planted in it. The other Lilies are grown in tubs, which are taken into the basement of the house in the fall, although only hardy Lilies are used.

The soil for the tubs and that in the pool comes from a compost heap in a rear corner of the yard, mixed with well rotted stable manure and sand. The Lilies planted in this soil grow with the greatest luxuriance and great numbers of plants have to be removed every year to keep the pool from becoming overcrowded. Among the best sorts grown are *Nymphaea* W. B. Shaw, pink; *N. Marliacea chromatella*, yellow; and *N. Marliacea rosea*, rose-pink. There are masses of Lotus at one side and behind them a bed of Cattails, which grow both in and out of the water and are perfectly at home in spite of the seeming anomaly found in the growing of bog plants on a hillside ledge.

Just where the Cattails came from Mr. Sherman does not know. He had desired some of these plants for several years, but had never obtained any so far as he was aware. Yet one year they came up in the most natural sort of way and made "cats" the next

season in profusion. The explanation must lie in the fact that it is a common practice for Mr. Sherman to go into the woods and marshes and bring home wild plants which he sets out along the water's edge. Among some of these plants there must have been roots of the Cattail, although no plants were to be seen.

When the sun shines on the pool in mid-summer, the water is brilliant with gold fish. There were ten of these fish to begin with; now there are at least a hundred. Across the shallow upper end of the pool Mr. Sherman has made a miniature wall with small stones and into the retreat thus created, the gold fish come to spawn. Afterward they are driven out and kept excluded until the spawn have developed into little fish and these fish have attained a length of half an inch. It is not until then that the danger of cannibalism on the part of the older fish is over. As it is, there is considerable loss each year, and yet the fish multiply fast enough to keep the two pools well stocked. I say two pools, for the smaller one was not given up when its bigger neighbor came into being. Both are kept filled with Lilies and are a delight all summer long. They are filled with a hose as may be necessary, but the water is seldom



Surely not one's conception of a garden site! But look at the other pictures



By blasting a suitable pocket was obtained for the excellent Peonies which now flourish

drawn off, and the gold fish prevent the breeding of mosquitoes. The Lilies planted in the larger pool and the gold fish winter outside without loss. Altogether these water gardens are most satisfactory.

Water plants, however, are not depended upon for flowers to the exclusion of other kinds. On the contrary, the whole lot is bright with blossoms, except for a narrow lawn that has been made just back of the house and on the sides. By hauling in some loam and utilizing the thin surface covering already there, much of the ledge has been hidden from view, but here and there great boulders poke



Starting with a rock covered with Briers this garden of real delight has been made where grow aquatics, herbaceous perennials, and in their season tender summer flowers in variety

themselves above the surface. Where that occurs, more stones are added, earth is thrown in among them and a rock garden made. An immense rocky shoulder on one side of the house is surrounded each season with Begonias, while more flowers of the same kind are grown on top of it. Another great rock is concealed by Geraniums and Trailing Vinca, growing in earth which is held in place by a circle of pudding-stones gathered about the place and rolled to that spot. Boston Ivy climbs over less conspicuous rocks, and also rambles over the iron fence, keeping company with a well estab-

lished and rampant Hall's Honeysuckle. Even a magnificent Peony has been persuaded to make itself at home in this garden on a ledge.

Back of the house and partly concealing the water garden from the street is a bed of Salvia each season, their fiery hues being softened by another bed some distance in advance, which is filled with Vinca rosea, var. alba. On the other side of the lot is a large Grape vine which covers a rock growing high out of the ground but which, being completely covered, seems to be merely a support for the vine. Near the back fence it has been

found possible to coax a few beans and other vegetables into bearing.

Practically all the work on this place has been done by the owner and his sons as a means of recreation and exercise. Nothing has been hurried, but everything has been done well. Even the iron fence posts have been made fast by setting them deep into solid rock or into concrete foundation posts where the rocks were not conveniently placed. And it would be difficult to find a suburban home anywhere which has been successfully developed under greater difficulties.

An Onlooker's Thoughts About Plant Names FRED A. WILSON Massachusetts

AN ENGLISH novelist—was it Mr. Phillpotts?—once wrote of the terror inspired by some of our plant names. He asked if it seemed fair to call an innocent green flowered East Indian, with white berries, "Fluggea"; while "Rhyncospermum jasminoides" brings forth the assertion that the nomenclature of the world flora is an infamy crying to reason and to Heaven to be swept away!

The whole subject of plant names is worth attention—for it has its phases of importance, of interest, and of mere curiosity. Plant lovers can get an added pleasure from knowing the meaning there is in the names of their treasures. Many a pretty story, bit of sentiment or point of human interest may underlie what too often appears merely dull and dry terminology.

The present universally used "binomial" or "two-name" system of nomenclature started in 1753 with the publication by the great Linnaeus of his work "Species Plantarum." Then, for the first time, were plants

named according to a uniform system based upon the principle that two names—generic and specific—each consisting of one word, should be sufficient.

Prior to this time plant names were made according to whim or individual desire, and were chaotic in the extreme. It was a worse condition than with names of humans a couple of centuries earlier, for plant names might be long and descriptive—a half dozen or more words was not exceptional. Names of this kind may be found in the works of old writers—reaching back before the Christian era. Late in this period before Linnaeus brought order out of confusion, arose the custom of coining plant names from personal names.

The two-name system naturally had its opponents, but its advantages, and the influence of its great originator, led to its speedy and almost universal adoption. The various editions of Miller's "Gardener's Dictionary" show the old and the new—the later editions adopting the Linnaean system.

There still remained an inclination to

change, while seeking improvements, the two names of the binomial system. Most people were content to be guided by the leading systematic botanists; and these obtained a large measure of uniformity by their willingness to accept priority in names. Sometimes continuing research showed that an approved name was not the oldest, that more than one person had named a plant at the same time; or that the identity of species or genus had been misunderstood. Such an indefiniteness as occurred with our grand climber Wistaria was not unique. This vine was named after Dr. Wistar or Wister of Philadelphia by Nuttall. It transpired more recently that not even the family descendants knew whether the last syllable should be spelled with an "a" or an "e." It remained for an international botanical congress to settle the spelling, arbitrarily, to get desirable uniformity.

These are illustrations of the chances for variations in naming, so that it became needful to have definite and uniform rules for the best service of the increasing activities in

botany and horticulture. In 1867 De Candolle presented to the International Botanical Congress at Paris a code of rules to be followed in making names. Naturally a vital feature was the preservation of the oldest name. Continental botanists followed this "Paris Code," in a majority; but in Britain more attention was given to what is known as the "Kew Rules."

In 1892 the Botanical Club of the American Association for the Advancement of Science made a short code, variously amended until it was issued in amplified form as the "Philadelphia Code." Several other organizations tried for improvements which should meet general favor, until in 1905 there came from the International Botanical Congress in Vienna what is known as the "International Rules" or "Vienna Code." Americans objected to it and advocated the "Philadelphia Code," now often known as the "American Code."

Of course there are interesting objections to both codes, but their merits, and the desirability of uniformity, have so firmly established them that it would seem that no variations from them can be successfully promulgated. It is of course very desirable that the differences between these two codes may be harmonized so that one system may be universally followed in making plant names. A good comparison of the name variations afforded by these two most prominent systems is between the 7th edition of Gray's "Manual" and the 2nd edition of Britton's "Manual." The first uses the "International Rules" and the second the "Philadelphia Code."

It is apparent that even with one system of rules universally approved, there would remain some possibilities of varieties. The variability of plants themselves has led to trouble which no code of rules could obviate. Botanists have more than once been misled even to the extent of using the same name for different plants; and often different names have been applied to the same plant by some accident or for other usually poor reasons. This leads directly to the common practice in science of following the name with the name of the botanist who was the author of the name, thus—*Centaurea Cyanus* (Linn). Of course the latter is omitted in current practice, but becomes important in accurate work. Knowing the author one can trace back to his works, or perhaps to his herbarium, and thus reach a degree of accuracy in identification not easy or indeed possible otherwise, because of the confusing elements which have been described.

Latin is used, according to the rules, for descriptive terms. Other names are in the vulgar tongue, usually, and are not translated when transferred to other languages. Latin is obviously appropriate for this purpose, although it offers some difficulties to people to whom it is unfamiliar. It is a common delusion that professional horticulturists are fond of Latin names and like to display them before novices. The truth is different. Experts like to use popular names and beginners sometimes affect Latin names. The old stager says Japan Honeysuckle, Dogwood and Redbud; it is the amateur, typically, to whom these names are less familiar.

At the same time to a florist or a gardener brought up with plants, Latin names are easy. A man may speak broken English or poor English and not halt over the specific name of a plant. The wider public, however, may take makeshifts or may go stumbingly, and may never realize what a wealth of real human in-

terest and vitality may underlie what appears to be only a dull though necessary operation. It does not take much study to uncover this—and to a plant lover the resulting pleasure is worth the trouble.

Of course improvements seem possible. It is hard for instance for a distracted amateur to see why we should have *ruber*, *rubra*, *cardinalis*, *coccinea*, *fulgens*, and *splendens* all meaning red species. Doubtless some of these words mean different reds when used strictly, but it is not so in the practice here considered. Likewise there are *alba*, *albida*, *albus*, *blanda*, *nivea*, *niveus*, and *candidum* for white; *coerulea*, *azurea*, *violacea*, and *coelestina* for blue; and *aureum*, *flava*, *luteus*, *flavum* and *sulphurea* for yellow. Size is



LINNAEUS

Carl von Linné, the Swedish botanist, born 1707, died 1778, is called the Father of Modern Botany. He it was who brought order out of chaos indeed by the introduction of his system of naming plants with two words—one generic and the other specific. Before the time of Linnaeus, the name by which he is usually known, plant names were descriptive titles without any system or without showing the relationship of species within a genus.

Linnaeus was educated as a physician and became so entranced in studies of natural history that he practically abandoned medicine, until his later years, becoming instead a professor of botany, but in his time, botany and medicine were nearly always closely united. He did not confine his attention only to botany, but he also classified animal life.

He travelled largely through the countries of Europe and published a great many papers and books. His collections and library were sold at his death to Sir J. E. Smith, the first President of the Linnaean Society of London, and in that way became finally the property of the Society itself, in whose library they now stand together with many manuscripts.

His father had intended to train him as a priest and was so disappointed at his son's enthusiasm in natural history that he finally proposed to apprentice him to a trade, and it was through the interest of a physician that he was brought into active association with his chosen field.

He became Professor of Botany at Upsala, having attracted the attention of Rudbeck, the then professor. Linnaeus had previously applied for the position of gardener in that institution. In 1737 he published his "Genera Plantarum" which is considered to be the starting point in modern systematic botany. At this time he held a chair in the University of Amsterdam. Linnaeus, in his travels as a botanist, visited France and England, and in September 1738 he returned to Stockholm and started to practice medicine. In 1741 he was appointed to the Chair of Medicine at Upsala but resigned it to take the Chair of Botany. In 1753 he published "Species Plantarum" in which he listed all the species of plants with which he had acquaintance. His lectures were attended by great numbers of students and he was given the Patent of Nobility in 1761. He died January 10, 1778, at Upsala, and was buried in the Cathedral there.

The Linnian system of classification of plants was based on the numbers of the stamens and the pistils of the flower—artificial, but thoroughly practical, and it served its purpose. He was an indefatigable worker and the impression that he has left on natural history can never be effaced.

In the above picture Linnaeus is shown wearing in the coat lapel a sprig of twin flower, *Linnaea*, in which his name is commemorated—a small, almost insignificant plant. It was named after him at his own request as being his favorite flower.

major or nana, majus or nanus. "Common" species are officialis, vulgaris or hortensis. Fragrance is indicated by fragrans, odorata, moschata, odoratissima and suaveolens. Texture is shown by pubescens, tomentosa, mollis, villosa, hirsuta, rugosa and spinosissima. While these names are numerous, yet is there not a pleasure in them after they become familiar enough to be easy steps?

Doubtless there are plant names disagreeable to everyone—yet sometimes what one person finds ugly may please another. It is best to tolerate the bad names for the sake of a system which also yields so much that is delightful. There is little objection to Heddewigii as a part of a flower name, but what should be done with the name of the Polish botanist which leads to *Tachichatchewia*—assuming of course that you are an English speaking person.

Botanists often commemorate achievements and pay compliments and in this practice comes names like *Brugmansia* or *Bougainvillea*. De Bougainville was a French navigator who died in 1811. A combination of two names is in *Neonicholsonia Watsonnii*. Nicholson was director at Kew Gardens and thus in one species of a genus of plants named in his honor, courtesy is also extended to his successor. A very curious instance of plant naming comes from the great Linnaeus. He had a friend, a Swedish Bishop John Browall, for whom he named the pretty little blue *Browallia*. One species was *Browallia elata* or elatior in token of his pleasure at their friendship. Later the intimacy waned and he named another species *Browallia demissa*—while still another was called *Browallia alienata* in token of a complete separation.

Every country has its vernacular names—mostly appropriate and pleasing. *Chionodoxa*, a compound Greek word, becomes by mere translation *Glory-of-the-Snow* to English speaking people. But invention in this direction is not so active as formerly. Surely no one would use the name *Eschscholtzia* if it could be avoided, yet it is so old and popular it seems almost an old fashioned flower, and California Poppy does not gain in popularity.

Apparently the chief reason why common names do not appear as formerly is that the present botanical systems speedily, accurately and universally identify a plant. In earlier times the botanical name came after the common name, and it may have had no wider acceptance or approval. Thus it would have no such importance as it has to-day, and the common name had its chance to live. Some old common names were applied to two or more plants as *Gilliflower*, *Fair Maids of France*, *Virgin's Bower* and *Bachelor's Buttons*. Some common names seem full of the delight of generations of men, as *Heart's Ease*, *Forget-Me-Not*, *Burning-bush* or *Baby's-breath*. Sometimes a liking for nicknames is detected, as when *Love-in-a-Mist* is also *Devil-in-a-Bush*, or *Bleeding Hearts* is *Dutchman's Breeches*. Common names are difficult to invent offhand—the best ones seem the product of generations. The competition of botanical names is so much stronger than formerly that there is danger of losing good common names. More and more are Larkspurs called *Delphiniums*; Monkshoods, *Aconitums*; and Columbines, *Aquilegias*.

There is room for both. The old common names should be kept. Much may be done if books and magazines will use them when possible—adding them when botanical names are important. Seedsmen and nurserymen can help by giving both names. Some gardening books also reach out in this direction, as when in a

recent one *Arenaria montana* is called Mountain Sandwort, *Sempervivum arenarium* is Sand Houseleek, and *Tigridia* is Tiger-flower. What matters it that a certain spotted *Mimulus* is also called Tiger-flower? A newer name is Rockspray for *Cotoneaster*, and this is so good sounding and descriptive that it deserves favor. Some names now nearly forgotten are worthy of revival: Pearls of Spain for White Grape Hyacinth, Virgin's Bower for *Adlumia* or a *Clematis*, Goldilocks for *Helichrysum*, and Rosaruby for Red *Adonis*. In Queen Elizabeth's time Bachelor's-buttons was applied to *Ranunculus*.

One writer has said that certain plants were first bought because of the attractiveness of their names such as *Stephandra flexuosa*, *Zea gracillima variegata*, *Euphorbia corollata*,

and *Armeria formosa*. The first attraction to others has come from their poetical associations, as with *Asphodel*, *Rue*, *Rosemary*, *Spikenard*, *Lavender*, and *Amaranthus*. Some names, on the other hand, seem to need changing, or at least translation. An example of this is the early annual *Aster* known in English as *Queen-of-the-Market*. It originated in France and was known there as *Reine des Halles*. This name was not particularly euphonious, and from a commercial point of view at least, the translation helped (with English speaking people). Many good common names are derived from the Latin, as *Paeony*, *Violet*, *Lily*, *Tulip* and *Rose*. Genuine Anglo-Saxon names are such as *Beech*, *Bramble*, *Yew*, *Holly*, *Ivy* and *Oak*. *Michaelmas Daisy* and *Christmas Rose* derive

a common name from the time of blooming; while *Snapdragon*, *Monkshood*, *Snowdrop*, *Cockscomb*, and *Hartstongue* come from the appearance of some part of the plant.

All will remember, in "Alice in Wonderland," where Alice, the White Rabbit, the Mouse and the Dodo fell into the water and then wondered how they would get dry. The Mouse says "I'll make you dry enough. I'll read a few pages of this English History, its the driest thing I know."

May we hope that no such comment may ever be made about plant names—and that they will always possess a vital human interest because of the associations and the beauty of the names themselves. Probably the plants do not need this additional attraction, but they deserve it.

Where the Dwarf Fruit Tree Really Fits SAMUEL FRASER

New York

THE FRUIT GARDEN IN RELATION TO OTHER FEATURES—QUALITY OF CROP AND ECONOMY OF SPACE AS PRIME FACTORS—GARDEN VS. ORCHARD

IT WOULD seem to be nothing but plain common sense that the site for a fruit garden be selected with regard to the welfare of the trees to be planted. Yet, too often the setting of the garden is given preference to the welfare or requirements of the trees. In Europe gardening has been through a longer evolution than it has in America, and we may properly make use of some of the old world *principles*, though changing the detail.

The gardens of a well equipped English estate to be in class A must embrace certain varied features: they are subdivided into departments, each under the management of one of the several foremen, and the whole administered by the Head Gardener who is looked up to and is expected to be able to

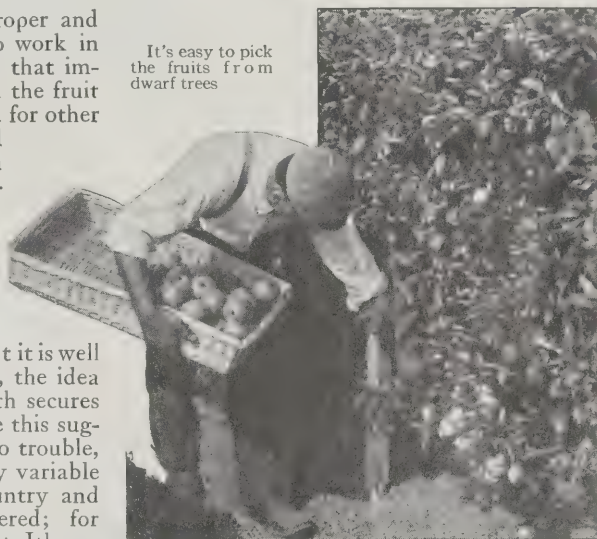
handle all the departments in a proper and orderly manner. Indeed, I used to work in such a place, and one of the things that impressed me was the garden wall and the fruit trees thereon. The garden was used for other things besides fruit, but a great deal of skill and much thought had been put into the planning and development of this feature.

This will serve as a good illustration of the fact that we must be prepared to do our own thinking, in developing our gardens to meet our own conditions: It is customary to locate the European garden so that it is well sheltered from the north and east, the idea being that the slope toward the south secures as much sun as possible. If we take this suggestion bodily we are apt to run into trouble, for our amount of sunshine is a very variable factor in different parts of the country and local conditions must be considered; for instance, in Western New York, at Ithaca, there are on the average about 86 bright days in the year and 186 cloudy, but so short a distance away as the Hudson River Valley, there are 186 bright days in the year. Since relatively speaking a great many of these

bright days occur during the winter and the sun shines brightly on the frozen trunks of trees, we much more frequently see the injurious results of the so-called "winter injury" in the latter locality. It is recognized as good practice under the latter conditions to place a shingle upright on the south side of a fruit tree or to so place something that it will cast a shadow and prevent the sun's rays striking the trunk direct, for the injury is most apparent on the lower part of the trunk; the branches tend to cast shadows and protect the upper part. This is one good reason for the low-heading of fruit trees in such a location.

I very much doubt the advisability of extensive planting of wind-breaks round a fruit garden. Would it not be better to plant on the windward side varieties least liable to be injured by winds? But if planting in the nature of a windbreak be made for its esthetic value, that's another matter.

It's easy to pick the fruits from dwarf trees



This dwarf apple, Bismarck, planted in May at Amherst, Mass., bore four large fruits in October of the same year



A soil which is "kind" and easy to work—a loam or sandy loam—is much more amenable than a clay, and if such can be secured it will suit a majority of fruit types. Pears and plums, however, do very well on the heavier soil types. Usually one must take the actual soil and by drainage (if it be wet), or by manuring and liming (if it be in poor condition), render it workable. But if one can study the requirements of the plants which are to be set out and can locate them with the idea of furnishing the optimum conditions, the future management will be much easier.

Among other things an adequate supply of water is necessary. Although we are long past the idea which formerly prevailed in English gardens that water was to be used in ample quantities for the purpose of washing the foliage in order to free the plants from aphids and other destructive insects, yet the germ of truth which underlies that practice should not be lost, namely, that if we maintain the plant in the best possible conditions it will be in better shape to overcome the injurious effects of attacks by insects and disease.

A surprising amount of ingenuity was expended in the past in order to get an adequate water supply and to distribute it; to have it placed so that it would not be seen, yet reached easily. For instance, I recall that in the fruit garden at Dalmeny, the seat of Lord Rosebery, a water pipe was placed on a projecting brick ledge, situated 4 inches below the surface of the ground. At 50 ft. intervals it was tapped so that the trees growing on the wall and in the garden could be readily watered.

To-day with our overhead and other systems of irrigation we achieve much better distribution and frequently with marked advantages. There are decided advantages in having an adequate water supply which can be promptly applied. Thus two years ago when the temperature fell to 26 degrees for six hours on the night of May 26th, at a time when peaches were in blossom or had just bloomed, Mr. Dell Titus, at Irondequoit, N. Y., was able to start the overhead irrigation system with which his orchard was equipped and leave it running until morning, with the result that the peach crop was saved! It is folly to neglect this one factor when trying to produce the highest type of fruit in a garden. A sprinkler system is thus a protection from both frost and drought. In addition the storage plant for the water may frequently be made into a source of enjoyment, especially if there is running water on the place. A small pond or reservoir is an ideal storage; it is of esthetic value; it enables one to grow water-loving plants and it encourages the birds.

WALLS IN AMERICA

In some American gardens walls are built for the specific purpose of growing fruit thereon. In many other instances walls which necessarily exist, as the wall of a stable or some other building, can be utilized for the production of fruit. A brick or cement wall is not an essential, however, and if the average unsightly board fence exists it can be used equally well. Indeed, people in suburban districts are losing their opportunities when they fail to make use of the usual board fence. Even where there are no walls or fences, trained fruit trees may be grown on a lattice work made of timber or wire, provided strong supports such as concrete posts are provided, although wooden posts will endure if properly cared for.

For horizontal cordons which are trained at 18 inches from the ground, wooden posts are quite frequently used, but for the trees which go up to a greater height, whether upright cordons or espalier, and where there is apt to be considerable wind pressure, a permanent post is essential.

In a country such as England, the reason for utilizing a wall is that the temperature near it is so much higher than it is in the open that plants grown on or close to it are forced. On the other hand the north wall is esteemed because upon it varieties which were relatively hardy and which fruited at

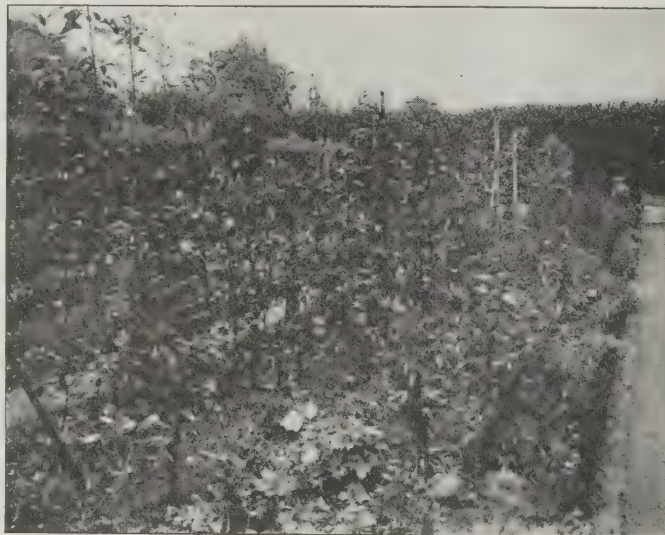
the end of the season could be greatly delayed in the ripening of their fruit.

These walls are usually built 10 to 12 feet high; frequently they are made of brick, although sometimes stone is used. With a view to breaking the monotony in some instances the north wall is built 14 feet high and the wall on the south side of the garden



Fence made of dwarf apple trees on Paradise roots used as a landscape feature in the approach to the arbor

might be but 10 feet. In some instances walls are built 16 feet high for the purpose of growing trees on them and in others where they are used for peaches, cherries, grapes, and figs, they may be but 6 feet high. Sometimes screw eyes are built into the wall and through these wires are threaded, the trees being trained on the wire. This saves a certain amount of nailing. In other cases wooden strips are nailed to the wall and the trees fastened to the wooden strips. Sometimes



Espalier apples planted four feet from walk, and intervening space used for flowers

a heavy coping is put on top of the wall so that a sheet may be hung from it to afford protection to plants when they are in bloom and there is danger from frost. In other instances the coping is movable so that it can be taken off when not in use. The basement of the wall should be solidly built of concrete and in some instances in Europe even a brick wall

was surfaced because concrete was deemed to be better than the brick itself.

It has been estimated that the temperature of a south wall is equivalent to that on the open plain seven degrees of latitude further south, viz., 600 miles. In many places, however, in this country, this additional degree of heat during a hot day in late summer or early fall is a disadvantage. However, the country is large and there are also regions where the protection of a south wall might be used with advantage.

For most American conditions it is better to place a trellis of some kind against the wall as the walls themselves get extremely hot in summer. The trees are then tied to the rails of the wooden trellis or wires which should be made closer or wider according to the type of tree to be trained.

In sections of the country where there is danger from the inroads of rabbits it will be well to arrange a ring or outer fence for the garden which should be placed anywhere from 30 to 60 feet from the wall. In some instances this may consist of a sunken fence or a hedge, but in such a case it is wise to provide a wire fence of such a nature that rabbits and hares can be excluded.

THE LAYING OUT OF THE GARDEN

A strip of land 10 to 20 feet from the wall (according to the size of the garden) is considered as being utilized by the roots of the plants grown on the wall. This area is not cultivated too deeply. Usually a walk is made at this distance and in some cases it is bordered by either low espalier or horizontal cordon trees. Considerable attention was often given to the "fitting" of the land in these borders, and at times they have been so enriched as to cause an enormous production of wood growth and very little fruit, and dwarf trees got the blame! It is needless to say that the garden should have adequate drainage.

In some instances the bulk of the garden may be filled up with dwarf standard or bush-form trees; in others, the body of the garden may be used for the production of small fruits or vegetables. A very effective display can be made by planting espalier trees 4 feet back from the walk and using the space between the walk and the trees for flowers; or the garden may be laid out in more or less formal fashion in order that the maximum space is secured for the espaliers and cordons. Dwarf standards usually have a trunk from 1 to 2½ feet tall with more or less rounded heads and are developed with a minimum of effort.

THE KINDS OF TREE SHAPES

It may be well to define some of these terms here:

A Cordon is a dwarf tree trained to a single spurred stem. The trunk may be vertical, oblique (frequently at an angle of about 75 degrees from the ground), or horizontal. Horizontal cordons when planted on each side of a walk are spoken of as cordon-rails. Such trees have practically but one dimension—length or height.

An Espalier is a dwarf tree which is trained on a lattice or wall. The trellis which supports the tree is also spoken of as an espalier. Espalier trees have height and width but no thickness; but they have many forms. There may be two U-shaped arms; they may be placed horizontally or obliquely.

Dwarf trees may be grown as small standards, bush-shaped and pyramids, and such trees have three dimensions—height, width and thickness.

In some instances a lattice work fence is built of living trees; these may be used to emphasize the approach to a seat at the end of a garden. Trees may be shaped into all kinds of forms, but in such instances the production of fruit is usually sacrificed absolutely.

Among the types of espalier a common form consists of a central trunk which runs upright as high as the wall or lattice work, and at intervals of 6 or 8 inches on each side branches are developed. For this purpose a beginner should secure one-year old trees or as the English term them "maidens," which consist of a straight whip and all the buds should be left on the trunk for they are needed to form the head. The tree, after it is planted, is staked, or fastened to the wires, and the branches are allowed to develop at intervals and should a branch fail to form at the right point a bud is inserted there which is then trained on the horizontal wire. This form is frequently used for all kinds of fruits.

In other instances the trunk varies in length according to requirements but is often 1 to 2 feet long and from its apex branches are allowed to develop which are trained like a fan radiating in all directions. This method is frequently used in greenhouses where nectarines are grown, and the peach and nectarine lend themselves quite well to it. The U form and the UU are sometimes used for espaliers, and both apples and pears are frequently thus trained.



This wall is properly designed to accommodate supports for the dwarf pear tree which is kept clear from the wall itself

For the lowest-growing dwarf trees a trunk a foot high is adequate. In some cases they are trained as pyramids and for such purposes four branches are allowed to start from the top of the trunk and are trained almost horizontally for a space of two feet. These are then staked in an upward direction pointed toward the centre of the tree and are held in this position until they have assumed the required shape. These four main branches are allowed to set fruit buds and fruit spurs but are not allowed to make secondary

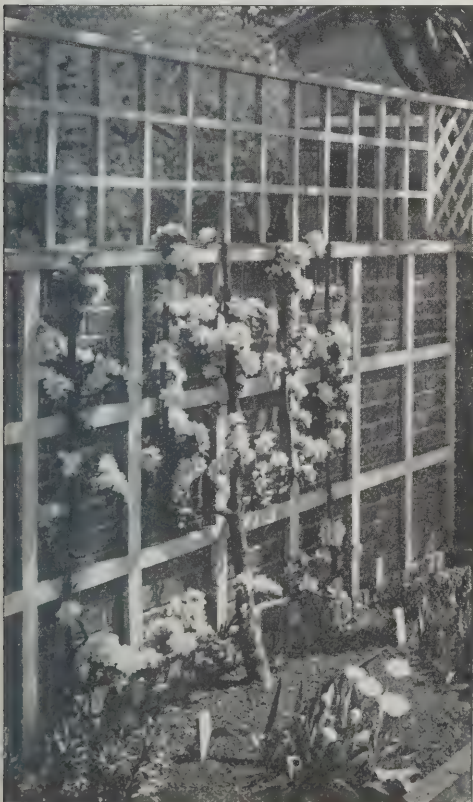
branches. In some cases 5, 6 or 8 branches are used instead of 4. It is, therefore, formality in outline which differentiates between a pyramid and small standards and bush shaped trees. The apple is the fruit commonly trained in this fashion.

One of the interesting things to me in the garden already mentioned was a section of wall covered with pear trees planted 15 inches apart; they consisted of cordons with straight trunks which were allowed to grow to a height of 12 feet, and at intervals on this single trunk fruit spurs were allowed to develop, so that a tree carried from 15 to 30 fruits. In order that these might ripen in position or stay on long enough to reach a proper degree of size, it was sometimes necessary to tie raffia round the stem and support the pear.

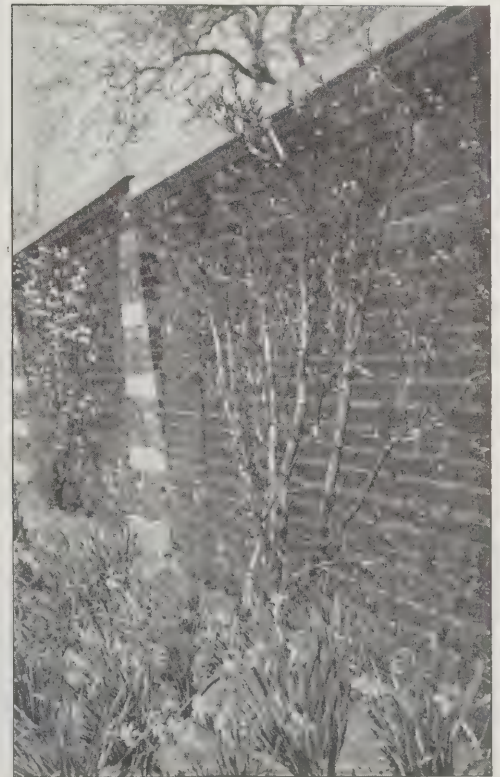
Apples are frequently trained in the same way for which purpose trees on the French Paradise root, not Doucin, are selected so that they will be dwarfed to the greatest extent. As a general rule it may be stated that rapid growing plants, such as peaches, nectarines, cherries and plums, are best handled as espaliers either fan shaped, or horizontal armed; and slower growing apples and pears as cordons, although the latter may in addition be used in any other form.

ADVANTAGES OF THE DWARF

The dwarf tree is particularly well suited to the home garden where there is no horse tillage. It is suited to the backyard, for the reason that the highest quality fruit may be produced. The trees are in such a position that they can be easily sprayed and thinned and in addition there is a considerable amount of enjoyment derived from directing the energies of a plant. Even an upright cordon apple tree will be 12 feet tall in five years; either peach or Japanese plums will reach the same height in three years. [The planting and further handling of dwarf fruit trees will be discussed next month.—Ed.]



The trellis used for dwarf fruit trees in this garden is an attractive feature in itself



Peaches and pears on the wall of a Long Island garden where wires are used as a trellis

When a "Little Glass" is Appreciated W. C. McCOLLOM New York



The life of bulbs in flower will be considerably prolonged by their being put in a cool place

THIS is the time of year (just between winter and spring), when the real gardener feels the need of frames, at least, to bridge over the gap. Heated frames, of course, are more useful than plain unheated ones and can be used now for all kinds of early sowings for the garden; and next month, with the heat shut off, they are fine to harden the plants before setting out. If you have a greenhouse you need frames, too; and if you have a garden you surely need frames as they will pay for themselves in increased crops.

FLOWERS FOR PRESENT USE

IN THE greenhouse, too, there is plenty of opportunity to forestall the summer demand for flowering plants as well as for cut blooms, and at the same time, the Roses and Carnations are giving their harvest from the work of last summer and fall. They must needs be kept up to pitch by feeding freely, giving them a couple of applications of liquid manures every week. Use a variety of foods—sheep manure, cow manure, guano in different forms—and some of the stronger chemicals such as nitrate of soda rather than any one alone applying of course in liquid form. Also spray frequently to keep insect pests, especially aphids, under control.

Gardenias will do well from cuttings started now, but don't make the attempt

unless your greenhouse has abundance of heat. Use a bench with bottom heat if possible. After rooting carry over in pots until they are in four inch pots from which they are usually transferred to the benches. Use the richest compost you can make up with enough leaf mold and sand to keep it open. Such a soil with plenty of heat and moisture will give good Gardenias.

Young plants of the various greenhouse plants such as Bouvardia, Abutilon, Eupatorium, Stevia, Paris Daisy, Swainsona, Chorizema, Fuchsia, etc., can be potted up just as soon as they have rooted in the propagating bed. As most of these are grown in pots, it is advisable to keep them in as small a one as possible. Let them exhaust the soil in one pot before they are transferred to another.

PREPARING FOR SUMMER FLOWERS

YOU lose half the value of a greenhouse unless its services are utilized at this time to help forward the stock of summer flowering bulbous plants. There are, indeed, some very showy things to be had for the greenhouse or conservatory during summer, and they deserve more attention. One of the best yellow summer flowers is the Yellow Calla; the Gloxinia is one of the most gorgeous of all flowers—a little fastidious in requirements, but not really hard to grow. The little blue Achimenes is one of the few really blue flowers, and too well known to need any description is the Tuberous Begonia. If started at intervals all will flower continuously during summer.

CUTTINGS FOR BEDDING OUT

NOW it will surely happen when the summer comes that you will require Geraniums, Coleus, Alternanthera, Ageratum, Heliotrope, etc., for the beds or boxes, etc., all of which can be easily taken care of now. Keep on propagating if you are at all short, not neglecting to pot up the cuttings immediately they are rooted, because they soon get drawn and spindly in the propagating bed. Cannas should be started before potting, or they may be handled in a frame. And if you have any favorite Dahlias, the bulbs can now be started into growth and cuttings taken to increase stock.

Of course, you want good Chrysanthemums in November! So, don't be afraid to throw away varieties that are not "top notchers,"



Ventilate frames freely, so as to harden off young seedlings prior to planting out

and replace them with the best new comers. Poor varieties require just as much attention as good ones. Therefore, get some of the best novelties, and don't neglect the cuttings; spray frequently until rooted, and pot up as soon as rooted; more promising batches of Chrysanthemums are destroyed in the propagating bed than at any other one time. Start right by keeping the young plants clean; you can't have good Chrysanthemums if you allow them to become infested with blackfly.

ALL YOUR SEEDS SOWN?

IT IS far better to have a surplus than a shortage, and the cost of a few seeds is a small matter, as against a satisfactory supply of Antirrhinum, Asters, Petunias, Salvias, Sweet Sultans, Salpiglossis, Heliotrope and other "annuals." Seeds sown in heat now will give strong early plants, but they need proper care, and if that can't be given, don't sow indoors at all. When the young plants make the third leaf, dibble off in boxes or on a bench in the greenhouse far enough apart so they will have sufficient room to grow until they may be safely set out—about 2 inches each way. Water carefully until they have started root action, and do not grow warm as they then suffer greatly when set outdoors.

Vegetables are handled exactly the same as the young flower seedlings; cauliflower, cab-



Constantly stir the soil about young plants; it prevents "damping off" and keeps the soil fresh



Transplant into the frames seedlings of vegetables and flowers as soon as they are ready, and ventilate freely

bage, lettuce, tomatoes, egg plant, peppers, celery, etc., may be sown in the frame or greenhouse this month.

The Single Chrysanthemum will flower this season from seed sown now. It is interesting work, and as you may get some very fine varieties, it is worth the effort starting a good quantity of seed. Snapdragons intended for forcing must be sown now, carrying over the plants in pots for the summer in a frame. By careful watering they can be confined to 4 inch pots from which they can be planted into the benches next August or September. Buy the best strain of Forcing Snapdragon you can procure.

Ornamental Grasses are popular for bedding work and they are excellent for cut green to use with flowers. Most of these grasses are annuals and the seeds are so fine that if sown out of doors they are usually lost. The best method of handling is to sow in flats rather thinly and when large enough to handle break up in small clumps and pot up; these can then be planted in groups or rows as desired.

FOR THE SUMMER SEASON

THERE are several worth while purposes to which you can put the greenhouse in summer, as for instance a few potted fruits. If properly cared for these little trees produce

wonderful fruit which cannot be matched for size and quality with any fruit grown in the open.

Another worthy summer crop is the muskmelon, especially as it is rather difficult to get good flowered fruit out of doors if there is any excess of rain during the ripening period. Start seeds now.

Good cut flowers of the annual type such as Asters, Salpiglossis, Sweet Sultan, etc., are always in demand during the summer season, and grown in the greenhouse will give flowers that far and away surpass the garden grown blooms.

Certain vegetables that do not do very well because of bad weather condition in the open can be grown to perfection inside. Cauliflower in the greenhouse will produce heads of wonderful quality and practically every plant heads up; cucumbers are also uncertain out of doors, but inside they can be grown to perfection.

Keep pinching the laterals in the early fruit houses; persistence and close application will do more to produce quality fruit than anything else. It is time that late fruit houses were started, as it is almost impossible to keep them back any longer without injuring the canes, spray them frequently when starting and tie the canes down to insure an even break.

HANDLING DECORATIVE PLANTS IN TUBS, ETC.

BAY-TREES, Hydrangeas, Laurels, Aucubas, used in tubs about the porch need overhauling now: sponge the foliage, using a mild, soapy insecticide, and retub any that require it. When doing this use a rich compost and ram down the soil thoroughly, using for example a pick handle. Bear in mind that these plants do not like a loose spongy soil; at the same time be sure to provide sufficient drainage at the bottom.

Hard-wooded forcing (such as Acacia, Genista, Azalea, etc.) after they have finished flowering, should be stored away, as the greenhouse space at this time of the year is valuable. Dig out one of the frames deep enough to accommodate these plants. The hardy hard-wooded plants need to be put into some sort of pit where they will have protection until all danger from freezing is past, as after being forced in the greenhouse they are full of sap and tender, and placing them directly out-of-doors after they have finished flowering, may ruin many.

Tender stove plants such as Crotons, Dracenas, etc., that have not been repotted must be fed freely with liquid manures; also all tropical or tender vines that are planted out such as Allamanda, Stephanotis and Bouganvillea.

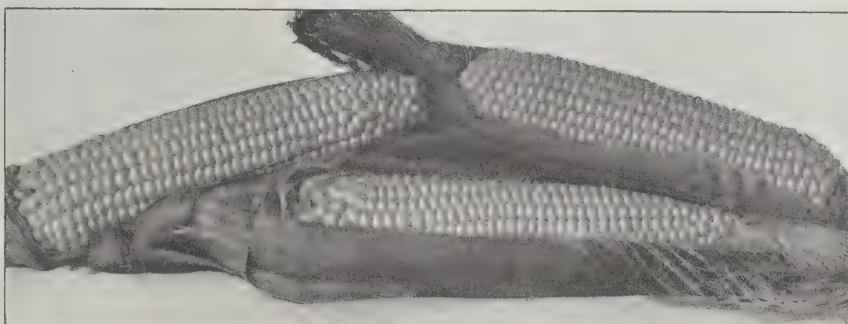
Which Sweet Corn and Why? ADOLPH KRUHM

New York

RECORDING THE REMARKABLE ADVANCE IN POPULAR FAVOR MADE BY THE YELLOW-GRAINED SORTS IN THE PAST DECADE

CORN-ON-THE-COB—hm! Golden Bantam—hm!! The difference in emphasis registers the difference in anticipation when the man who "knows" first learns of the arrival of "roasting ears." Not that I would want the reader to imagine for one minute that Golden Bantam is the *only* golden pebble on the beach! The change in popular opinion regarding yellow-grained sweet corn has brought about remarkable changes in the offerings of American seedsmen. Nevertheless, it is safe to say that all the newcomers in golden sweet corn are indebted to Golden Bantam for the appreciation which the whole yellow class now deservedly receives.

When making a decision on what to plant for your own use this year ask yourself (as in the case of every other vegetable), first: "What do I want?" and then "When do I want it?" and then choose sorts to serve your wants. You can have sweet corn five days to a week earlier than Early Dawn mentioned as my own choice of a first-early. Both Peep O'Day and Early Malakhoff beat that variety in time of maturity. But *please don't expect*



White Evergreen Corn, a very choice white early, maturing in 95 days

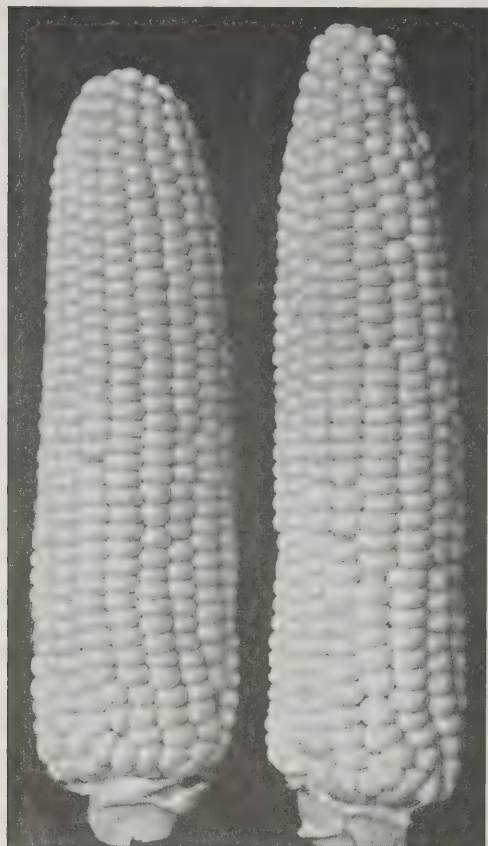


Golden Sugar is a newcomer in yellow sweet corn, maturing in 85 days

either of them to yield as handsome, well-filled ears nor as good a flavor; for, *what you gain in earliness you lose in size* and June suns cannot store that sweetness in the kernels for which we have to thank the hotter suns of a more advanced season.

In connection with the time of maturity given for the different sorts, I must ask your indulgence for variations that are apt to occur. No other vegetable in our gardens is as exacting in its requirements, as far as climatic conditions are concerned, as is sweet corn. To perfect its ears, it needs, perhaps, more moisture and more sunshine than any other vegetable. If the moisture fails during July and you planted Crosby's corn about the first of June, the plants will simply stop growing and wait for rain. A prolonged drouth is apt to cause a variation of anywhere from a week to ten days in the getting ready of the ears.

Another thing! If you live in a latitude above that of Binghamton, N. Y., and away from the beneficial influence of a maritime climate, it will pay you to pin your faith to the earlier and midseason kinds and to make repeated sowings of earliest varie-



Left: Original Crosby, a proven favorite. Right: Howling Mob, a leading second early. (Both white)

ties rather than to count on the late sorts in both classes for your late supply of this delicious vegetable. More than once have I seen Country Gentleman "nipped" by early September frosts from sowings made middle of June.

Of course, there is one sure way to beat Jack Frost in his own game! Simply start your seeds indoors while he still makes surprise visits outdoors. Handy little paper pots may be bought at surprisingly low cost. Most seedstores now carry them, too. Take three evenly sized kernels to every 3-inch pot and press them about one inch deep into the soil. Do this any time after April first and keep the pots reasonably warm and evenly moist. Within two weeks sprouts will show. When the little plants are about 3 inches tall, begin to keep them cooler to keep them from becoming spindly. It is hardly safe to set them outdoors before *all* danger from frost is over—about the time your Maple trees are out in full leaf.

Now, there are two ways to proceed in setting out these pots. If you have succeeded in raising 3 fine sturdy plants of about equal size, set out your plants in hills three feet apart, pots and all. The pots easily rot, while protecting the young corn from cutworms early in the season. But don't forget to *tear off the bottom of each pot* so that the roots may spread quickly.

On the other hand, if you have not succeeded in getting a good "stand" (and this frequently happens to all of us, no matter how carefully seeds are selected) set your pots one foot apart in rows, with three feet between the rows. And don't set your pots in one straight row, fifty feet long, but rather in five short rows, each ten feet long, forming a little "block" or square. This is a point some gardeners are apt to overlook. Yet, upon its observance depends entirely how well the patch is fertilized which, in turn, determines how well the ears will be filled.

While the subject of fertilization is before us, let me caution you not to plant white and yellow sorts of the same season of maturity side by side. If you do, you are bound to find yellow kernels all through the harvest of white ears and vice-versa. Not that it matters much or affects the quality in any way. But don't suspect your seedsman of selling you a poor strain if you ignore the question of cross-pollination.

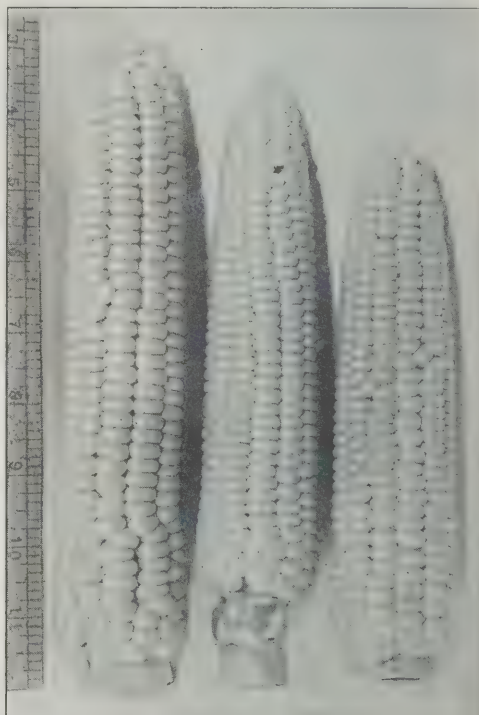
CORN FOR FIVE FROM JULY TO FROST

About Decoration Day I generally sow three fifteen-foot rows each of Golden Bantam and Sweet Orange. A week to ten days later I sow an equal amount of space to Howling Mob and Golden Rod. Of course, middle of April, I start about fifty pots of Early Dawn in our warm and sunny cellar. This generally insures us the first ears of the season for the "Fourth of July" dinner. For a succession up to frost, I depend on repeated sowings of Golden Bantam and Howling Mob. And it is perhaps worthy of mention that these two sorts seem to have a heavier husk than most others. As the result, they not only resist the attack of worms admirably, but also stand slight frosts without material injury to the ears within.

Notwithstanding many opinions of others to the contrary, I have found the growing of corn in rows, with the plants one foot apart in the row, to be far preferable to the hill method. A given area will then yield more ears and, where the soil is rich and well-fertilized, the ears will be just as large as those grown on plants in hills. In poor soil, of course, where manuring in hills has to be resorted to, the method of planting in hills is the only

choice. Where corn is planted in rows, slight hilling is advisable, especially in windy sections. Every time the wind blows your corn over, its development receives a setback.

To get the best out of every ear of corn you grow, regardless of variety or in which season you harvest it, the question of gathering is of prime importance. To know whether the corn is "ready" (at the best stage of development in flavor and quality) open the husk just a little and press a fingernail against a well developed kernel. If the skin yields to a slight pressure and plenty of milky juice is noticeable, the ear is ready for pulling. When gathering the first picking, don't pull or jerk the whole plant, but rather give the ear a twist and a downward break.



Left: Carpenter's Golden Sweet, one hundred days to maturity. Right: Golden Rod, a combination of Golden Bantam and Stowell's Evergreen. (Both yellow)

Don't gather the ears until about half an hour before you wish to eat them. Have the water at a boiling point and boil ten minutes. That allows five minutes for getting them on the table "piping hot." At the risk of being considered extravagant I suggest that a half a teaspoonful of granulated sugar be added to the boiling water. It works as insurance against disappointments in quality over which, in the case of sweet corn, we have all too little control.

THE SWEETEST CORN FOR THE HOME GARDEN

NAME	READY FOR TABLE	LENGTH OF AVERAGE EAR	NO. OF ROWS PER EAR	REMARKS ON THE VARIETY
The Choicest White Kinds				
Early Dawn	75 days	6 in.	10 rows	Earliest sort of good size and really fair quality
Pocahontas	85 days	8 in.	10 rows	Very first of second early sorts. Exceptional quality
Gregory's Original Crosby	87 days	8 in.	14-18 row	Of very choicest quality. Remarkable ears illustrated
Howling Mob	90 days	9 in.	12 rows	The leading second early white grained corn of quality
White Evergreen	95 days	10 in.	12-14 rows	Choicest strain
Country Gentleman	100 days	9 in.	zig-zag	Best flavored of all real table kinds
The Pick of Yellow Kinds				
Golden Bantam	80 days	6 in.	8 rows	Most popular early standard yellow
Golden Sugar	85 days	7½-8 in.	10-12 rows	A newcomer with all the Golden Bantam flavor in larger size
Seymour's Sweet Orange	90 days	7 in.	12-14 row	Of light yellow color but equal in flavor to darker sorts
Golden Rod	93 days	6-8 in.	8-10 rows	A happy offspring of Golden Bantam and Stowell's Evergreen
Golden Cream	96 days	6 in.	zigzag	A shoepeg variety, offering Golden Bantam and Country Gentleman flavor in one
Carpenter's Golden Sweet	100 days	7 in.	12 rows	The latest of the yellow kinds of really delicious quality

1917—A Garden Year

At no time in many years has the importance and the necessity of the home garden been so great as this year

Peter Henderson

OUR country is facing a critical situation in the matter of food supply and yet a partial remedy is in the hands of most every individual. One half of your summer living expenses are for vegetables that should come out of your own garden. A space even as small as 25 x 50 planted with seeds of a high quality such as Henderson's is sufficient for a family of six throughout the entire season. Fresh, crisp vegetables every day should be reason enough but in addition the saving makes it of the greatest importance.



To get the full results from your garden you should plant the best seeds obtainable. Seventy years of successful seeds growing and selling make Henderson's the standard. **Henderson's Seeds are Tested Seeds.**

"Everything for the Garden" is the title of our 1917 catalogue. It is really a book of 208 pages, with 32 colored plates and over 1000 half tones, all from actual photographs. Our annual catalogue is always exceptional, but this year we believe it the most beautiful and complete we have ever published.

A Remarkable Offer of Henderson's Specialties

But after all it is actual results which count, and to demonstrate the superiority of Henderson's Tested Seeds we have made up the Henderson Collection consisting of one packet of each of the following six great specialties:

Ponderosa Tomato

Big Boston Lettuce

White Tipped Scarlet Radish

Henderson's Invincible Asters

Mammoth Butterfly Pansies

Spencer Mammoth Waved Sweet Peas

To obtain the largest possible distribution for our annual catalogue, **"Everything for the Garden,"** we make the following unusual offer: Mail us 10c and we will send you the catalogue, together with this remarkable "Henderson Specialty Collection," and complete cultural directions.

Every Empty Envelope Counts as Cash

This collection is enclosed in a coupon envelope which, when emptied and returned, will be accepted as 25c cash payment on any order for seeds, plants or bulbs amounting to one dollar, or over. **Make this year a garden year.**

PETER HENDERSON & CO.
35-37 Cortlandt Street NEW YORK CITY

Peter Henderson & Co.

35-37 Cortlandt St., New York City

I enclose herewith 10c for which send catalogue and "Henderson's Specialty Collection," with complete cultural directions, as advertised in *The Garden Magazine*.



ROSELAND Is Calling You

More and more every year we are learning the joy of living with flowers around us—more and more we are taking a wholesome pleasure in watching the buds unfold into glorious blossoms. What is more attractive than the garden where the eye rests on masses of roses mingling their colors in a riot of loveliness? By setting out the right rose-bushes this spring you can cut flowers from them during the last days of May, and they will bloom almost continuously until the frosts of late fall.

"How To Grow Roses"

—a handbook on rose-culture, brimful of concise information on planting, pruning and growing. Endorsed by such eminent authority as S. S. Pennock, Pres. American Rose Society; Prof. Arno H. Nehrling, etc. Take advantage of one of these three offers: (1) Sent postpaid for \$1 (contains coupon worth \$1 with \$5 order for C. & J. Roses.) (2) Postpaid for 50c. with \$2 order for C. & J. Roses. (3) Sent FREE with \$5 order for C. & J. Roses. And don't forget to ask for our

1917 Floral Guide—Free

—tells all about the 400 varieties of C. & J. Roses—*guaranteed to bloom*. 253 instructive illustrations. Every rose-lover will find it a valuable help in selecting the right varieties. The "Best Roses for America." Write us to-day!

CONARD ROSES

& JONES CO., Box 24, WEST GROVE, PA.

Robert Pyle, Pres.

A. Wintzer, Vice-Pres.

Rose Specialists—Backed by 50 years' experience



The Reader's Service gives information about Gardening

The Readers' Service gives information about Real Estate

Plant Norway Maples For Quick Effect

Plant Harrison's Norway Maples this spring. Robust and hardy, they grow rapidly into towering round-topped trees with a dense bright-green foliage. Will be a source of delight when the hot days come.

Norway Maples
the King of Maples

Harrison Quality Trees

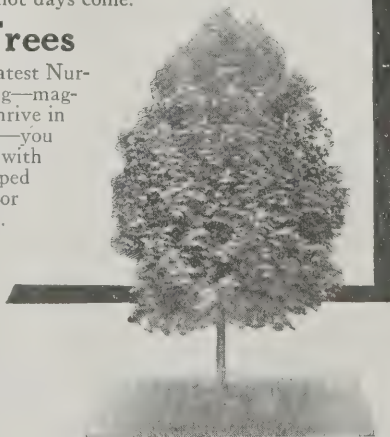
are grown by experts in "The World's Greatest Nurseries"—carefully shaped by proper pruning—magnificent root systems. They will live and thrive in any state, North or South. We grade liberally—you get good, big trees for your money. Packed with great care—roots of ornamentals are securely wrapped with burlap. We take equal pains with large or small orders. Ship by freight, express or parcels post. Our Service Department will help you to beautify your home grounds at least cost. Tell us your conditions. Our 1917 illustrated catalogue describes a complete stock of ornamental trees, shrubs and vines. Also apples, peach and other fruit trees. Write to-day. It's free.

"Largest growers of fruit trees in the world"

Harrison's Nurseries
J. G. HARRISON & SONS PROPRIETORS

Box 56

Berlin, Maryland



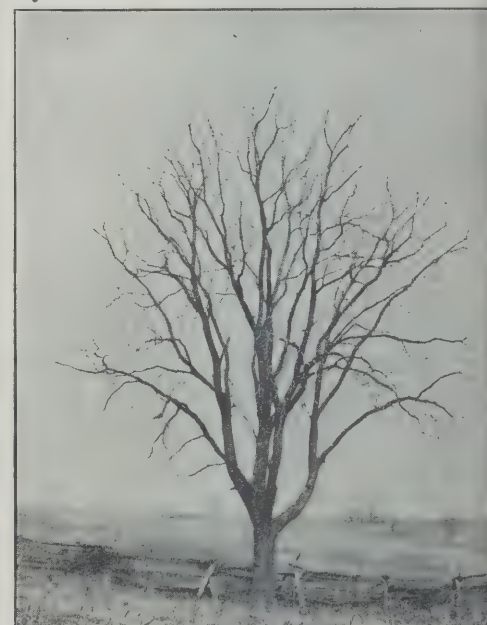
The Readers' Service will give you suggestions for planting

The Worth of a Nut Tree

ARCHIBALD RUTLEDGE, PA.

IF there is any available space on the farm, on the suburban place, or even in the city or village lot, plant a nut tree—plant as many as you can! Planting a nut tree is like securing a good, interest-yielding bond, without having to pay for it. A fine young nut tree can be had for the price of a cigar; and, with the time that one might waste in glancing through a newsless newspaper, the tree can be set. That's practically all the expense and all the work there is to it.

The decision to plant a nut tree should be readily reached by any man or woman who loves a tree of beauty, of shade-yielding qualities, of productiveness, and of permanence. When planted in any numbers, the timber-value should also be an attractive incentive. Few lovers of the great outdoors



Even in winter when bare of all foliage the Black Walnut is an effective tree in the landscape

(and is there any one who does not love nature) need to be urged to plant trees. They recognize them as essential to many forms of natural beauty, and know them to be frequently as useful as they are beautiful. But why, they may ask, plant a nut tree? Why is there a preference for this particular kind of tree?

As has been suggested, the nut tree has the double value of being both ornamental and productive. It is like a great oak that has the faculty of bearing edible acorns. Moreover, it is a long-lived tree; hardy, lusty, and capable of attaining massive proportions. It is independent of most of those conditions of weather and climate which render other trees, with possibilities of equal value, less likely to succeed. A nut tree is singularly free from the attacks of insect pests. Like everything that grows, it has its enemies; but these can be readily controlled.

A man should plant a nut tree because he is planting it for himself, his children, and his grandchildren. The pecan tree will round the century mark in beauty and strength. The black walnut, the shellbark, the shagbark hickory, and even the white walnut or "butter-nut" will thrive after the time-limit of a man's life has been passed. The nut tree is therefore

(Continued on p. 108)

\$5 Home Garden Collection \$5

106

Fruit Trees
and Plants

We make this offer to demonstrate the high quality of our nursery stock—the advantages of buying direct-from-our-nursery instead of through agents—and our ability to deliver hardy, guaranteed trees and plants anywhere in prime condition.

Money Back
if Not
Satisfied

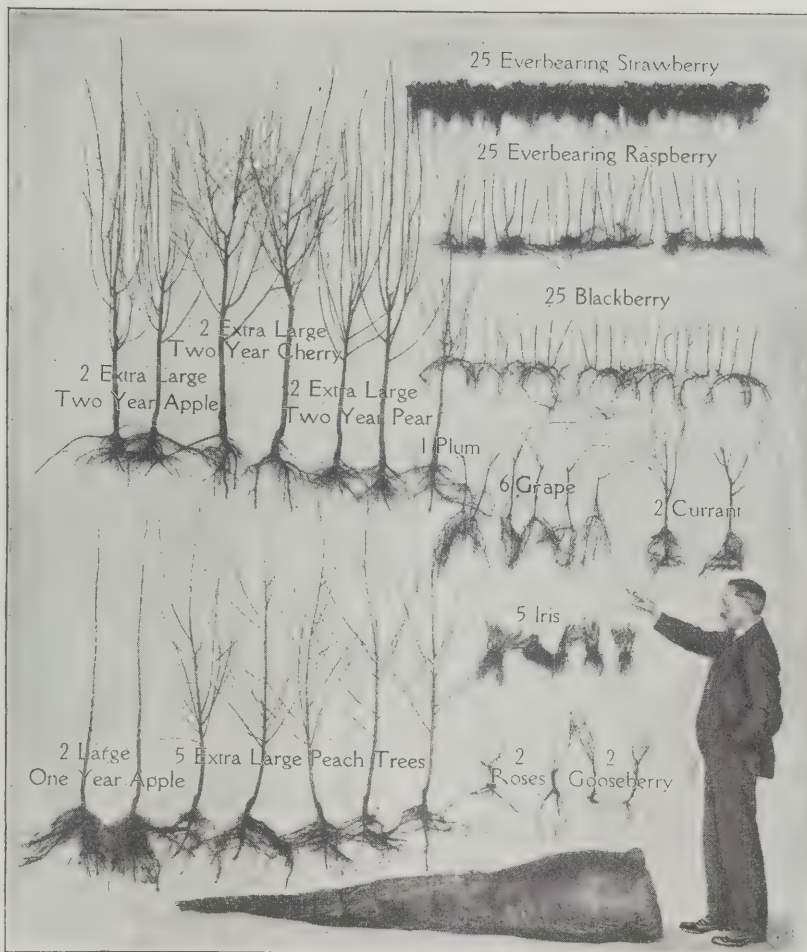
This selection will give you an abundance of choice, fresh fruits from your own garden for nearly six months; strawberries first, followed by other berries and tree fruits, last of all, the winter apples.

The Everbearing Strawberries will bear this summer and fall; next year you will get bush fruits and grapes, later on, tree fruits and finally, the incomparable Delicious.

"Last February, I ordered one of your special \$5.00 assortments of fruit trees. I am more than pleased with the result of that planting as every one of the fruit trees made an exceptional growth in the past year, and I did not lose a single one of them."—Forrest McKinley, Deming, New Mexico.

"We received your \$5.00 collection, and must say we are exceedingly pleased with it."—Mrs. Emile Rooke, Meriden, Connecticut.

"Your trees received. They arrived in splendid condition. I am well pleased with the collection."—Charles Shoefer, St. Charles, Mo.



These trees and plants are the largest size we grow. They are healthy and vigorous and have the unusually wide-spreading, heavy roots which have pleased home and commercial planters all over this country.

If, for any reason, you are not satisfied upon receipt of this collection, we will refund your five dollars promptly, with no "if's," "and's" or "but's." This offer expires April 2, 1917.

"Just received our \$5.00 special nursery order from you. Each tree and shrub was a joy within itself, about as near perfection as anything I have seen in the nursery line."—A. W. Cornelius, Rantoul, Kansas.

"I planted a \$5.00 trial order from you, and must say that I was real pleased with same. Intend to plant more of your stock this year."—Geo. Thornewell, Hamilton, Ontario, Canada.

"That \$5.00 trial collection I ordered from you came last week, and I must say I never saw a finer lot of trees from any nursery."—Thos. R. Jones, Jr., White Stone, Virginia.

The 106 trees and plants are as follows:

APPLE	1 Delicious	red	winter	PEACH	1 J. H. Hale	yellow	midseason	STRAWBERRY	25 Progressive		everbearing
	1 Wealthy	red	fall		1 Georgia Belle	white	midseason	RASPBERRY	25 St. Regis	red	everbearing
	1 Grimes Golden	yellow	winter		1 Elberta	yellow	midseason	BLACKBERRY	25 Early Harvest	black	early
	1 Yellow Transp'rnt	yellow	summer		1 Carman	white	early	GOOSEBERRY	2 Oregon Champion	red	midseason
PEAR	1 Bartlett	yellow	summer	GRAPE	1 Greensboro	white	early	CURRANT	2 Perfection	red	midseason
	1 Kieffer	yellow	winter		1 Agawam	red	late	ROSE	1 Dorothy Perkins	pink	climbing
PLUM	1 Endicott	red	midseason		1 Niagara	green	early		1 Crimson Rambler	red	climbing
CHERRY	1 Early Richmond	red	early		1 Concord	black	midseason	IRIS	5 Assorted	"The Rainbow Flower"	
	1 Montmorency	red	midseason		1 Moore Early	black	early				
					2 Worden	black	early				

We cannot make any change in this collection, but would be glad to include any additional trees or plants you wish to order. Let us send our 1917 catalog, FREE on request.

"A Wonderful Help to Fruit Growers."

Complete, concise, up-to-date guide—88 pages, many pictures—tells how to plant and care for fruit trees, plants, etc. This book sent free with this collection, or with any \$2.00 order, or for 10 cents per copy.

This illustrated 160-page book describes the varieties that have proved their worth. It contains new information never printed before. You can find what you want easily and quickly. Prices are given in plain figures.

"How to Beautify Your Home Grounds."

This book tells how to make your place more attractive and more valuable at little expense and trouble—how to plant and care for shrubs, roses, etc. This book sent free with this collection or with any \$2.00 order, or for 10 cents per copy.

William P. Stark Nurseries, Box 388 *Stark City Mo.*

To William P. Stark Nurseries, Box 388, Stark City, Mo.

house, your \$5.00 Home Garden Collection, 106 fruit trees and plants, money to be refunded if I am not satisfied on receipt of collection. Send books also.

NAME

ADDRESS

(Please give express station also.)

THE TIME IS NOW SHORT. If you have not yet ordered the nursery stock for your spring planting, you should, in justice to yourself, do so now.

You have no more time to spend reading catalogue literature.

You have no more time to waste admiring beautiful horticultural pictures.

But you **HAVE** time to order your nursery stock from a reliable house which you can trust to not disappoint you.

Our reputation for giving satisfaction is your greatest safeguard against disappointment. Order now.

Framingham Nurseries

FRAMINGHAM - MASSACHUSETTS



**When you've had enough
you'll still want more**

IN this delicious Sweet Corn are concentrated all the excellent qualities of its well known parents, **Golden Bantam** & **Stowell's Evergreen**, which have been the "All Star" varieties for many years past. The earliness and sweetness of the former and the tenderness, size and color of the latter are all combined in **BANTAM EVERGREEN**, the greatest achievement in Corn raising of the present day.

If you want to thoroughly appreciate the delicious qualities of good Sweet Corn, try **BANTAM EVERGREEN**, freshly cooked, straight from the garden. Last year the demand exceeded the supply and we were obliged to refuse hundreds of orders during the late season.

Half pint 20c; Per pint, 35c; Postpaid

For those desiring the two "Bantams" we will mail the **GOLDEN BANTAM** and **BANTAM EVERGREEN**, in separate packages

Half pint of each for 35c.....Postpaid

Pint of each for 50c.....Postpaid

160-page illustrated Catalogue FREE with each order.

VAUGHAN'S SEED STORE

31-33 W. Randolph Street (Dept. G)
43 Barclay Street (Dept. G)

CHICAGO
NEW YORK

100 Everbearing Strawberry Plants \$1.40 Post Paid

Progressive, Americus or Superb. We introduced Progressive. Say which. 25 Everbearing Red Ras. 70 cts. postpaid. Catalogue Free, all about the New Everbearers and other important varieties.

C. N. FLANSBURGH & SON, Jackson, Mich.

Start an Iris Border

No plant is more beautiful, hardier, or more generally satisfactory. Here are twelve of the loveliest German Irises, in the most distinct colors. Plant them early,—not later than April 15,—and they will bloom in your garden next summer.

- Kochii.** Richest royal purple.
- Kharput.** Violet, and velvety purple; huge flowers.
- Khedive.** Soft silvery lavender.
- Queen of May.** Lovely lilac-pink.
- Miralba.** Old-rose; most distinct.
- Florentina.** The best large white.
- Mrs. H. Darwin.** Pure white, slightly veined violet.
- Mme. Chereau.** White, frilled lavender-blue.
- Flavescens.** Uniform pale, creamy yellow.
- Darius.** Canary yellow, purple bordered cream.
- Monhassan.** Standards orange yellow, falls maroon-black.
- Hector.** Standards straw yellow, falls deepest purple.

**12 plants, one of each \$2
variety. Delivered for**

The list of Irises in my catalogue "Flowers for the Hardy Garden," is particularly attractive, for it includes some of the newest and rarest sorts. Besides Irises, the choicest varieties of Delphiniums, Phloxes, Peonies, and many other perennials are described in detail, with many suggestions on culture and arrangement for color effect. A copy is free for the asking.

Twin Larches Nursery
Frank M. Thomas, West Chester, Pa.

(Continued from p. 106)

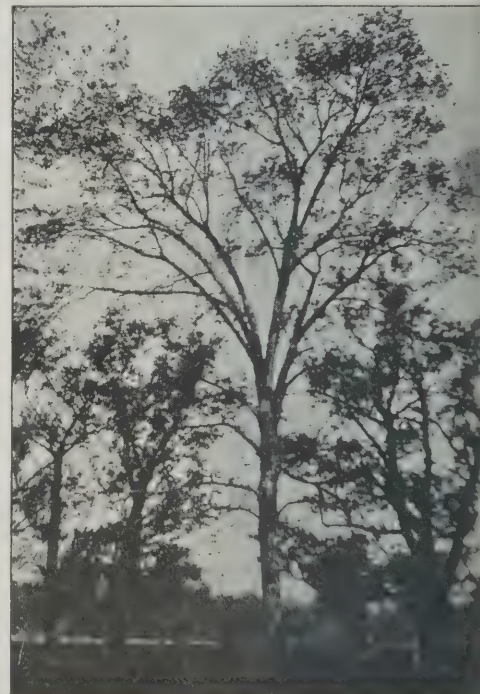
not only an investment, but it is one of considerable permanence.

Except when it is crowded by other trees, as when it grows in the forest, so that it must tower for light and air, the nut tree is one of the most beautiful and attractive of the landscape. It has a rugged, masculine grace. It is frequently cone-shaped, with its massive, heavy-foliaged limbs often sweeping far out and down until they touch the ground. This feature of growth is especially noticeable in the pecan and the shellbark. The nut tree wears abundant foliage, and gives excellent summer shade. The boles and limbs are clean, and give a sense of stalwart vigor—what Tennyson calls "stubborn hardihood." This renders the aspect of a nut tree in the winter especially fine. Naked and dark and strong, it braves the storms and the bitterest cold, waiting in the confidence of noble strength the resurrection of the world with the coming of spring.

A nut tree should be planted because the value of the nuts themselves is not to be overlooked; and to think of the pleasure of gathering them in the yard or the orchard! They are always a welcome addition to the family pantry, especially since an increasing number of uses for them has been found; not only in candy, but in salads, in ice-creams, in cake, and in many kinds of desserts. Their keeping qualities are excellent. Stored unshelled in a cool place, they will keep well for at least a full year.

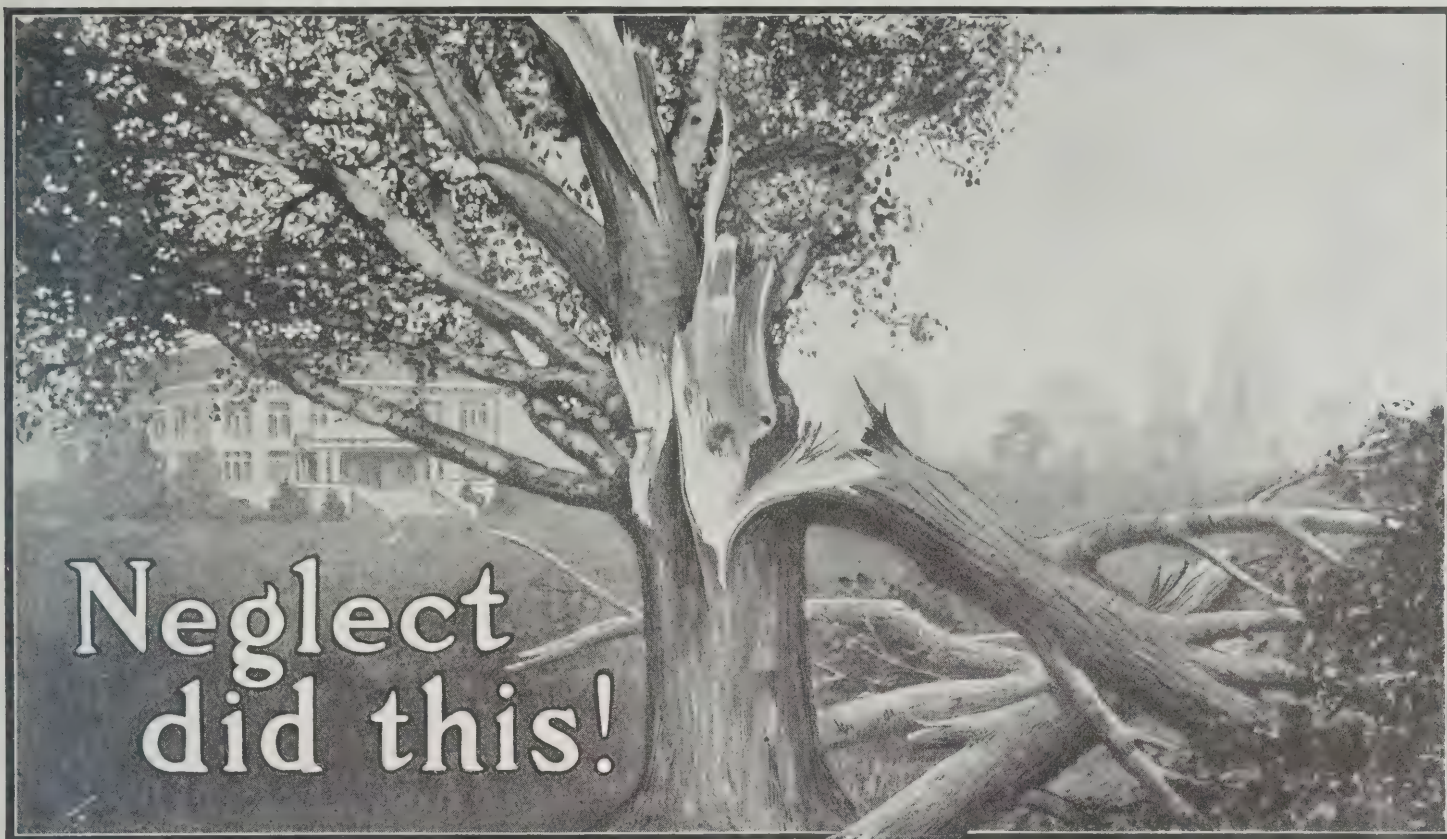
The practical question of *what* nut tree to plant, after the decision to plant one has been reached, is readily answered. In general terms, plant on your own place those nut trees which are native to your section of the country, or which should be native forest trees there. These noble trees, though hardy in many ways, are somewhat exacting of certain conditions; and no man deserves to succeed in planting who tries to grow things without paying an especial regard to their nature and their needs.

America's chief native nut trees are the pecan, the black walnut, and the shellbark, this



The Shellbark Hickory is a sturdy grower, handsome, and profitable. This tree yielded four bushels of fine nuts

(Continued on p. 110)



Neglect did this!

ARE you neglecting your trees?
Do you know *positively* that they are strong and healthy—are you *sure* they are free from decay and disease?

The owner of the tree shown above *assumed* that its condition was perfect, but he intended to find out *some day* for a certainty.

His neglect was fatal. The tree, sound in appearance to the untrained eye, inside was seriously decayed. One day a severe storm blew and the weakened tree gave way—ruined beyond saving! It was a case of "the last straw which broke the camel's back."

Take no chances with your trees—have them examined *now*.

But be sure to select Tree Surgeons of *proved* ability—experts who can save your trees without guessing or experiment.

Davey Tree Surgery Is Safe

Your trees, many of them the product of several generations, are priceless. Once lost, they can not be restored in your lifetime, or that of your children.

To whom shall you entrust them? There can be only one answer, for there is only one *safe* place to go—to Davey Tree Surgeons.

Safe—because Davey Tree Surgery is time-proved; its record of successful performance for thousands of estate owners spans a generation.

Safe—because the Davey Company is a successful institution of financial stability and amply able to make good in every detail.

Safe—because no Davey Tree Surgeon is allowed any responsibility until he has conclusively demonstrated his fitness. He must have served his full course of thorough practical

training and scientific study in the Davey Institute of Tree Surgery—a school, the only one of its kind in the world, which we conduct for the specific purpose of drilling our men in Davey methods and Davey ideals.

Safe—because Davey Tree Surgery has been endorsed as best by the United States Government, after exhaustive official investigation.

Safe—because Davey Tree Surgery is recommended by thousands of prominent men and women whose endorsement you can accept with complete confidence. (Several such endorsements appear on the right.)

Tree "patching" cannot save your trees. Only scientific mechanically perfect treatment by men trained through years to the point of finished skill can be permanently successful. And for such treatment by such men there is only one safe place to go—to Davey Tree Surgeons.

Write to-day for Free Examination of your Trees

—and booklet, "When Your Trees Need the Tree Surgeon." What is the real condition of your trees? Are insidious diseases and hidden decay slowly undermining their strength? Will the next severe storm claim one or more as its victims? Only the experienced Tree Surgeon can tell you fully and definitely. Without cost or obligation to you, a Davey Tree Surgeon will visit your place, and render an honest verdict regarding their condition and needs. Write to-day.

The Davey Tree Expert Co., Inc.

1203 Elm Street, Kent, Ohio

(Operating the Davey Institute of Tree Surgery, Kent, Ohio.)

Branch Offices, with Telephone Connections:
New York, Philadelphia and Chicago

Permanent representatives located at Boston, Newport, Lenox, Hartford, Albany, Poughkeepsie, White Plains, Stamford, Jamaica, L. I., Morristown, N. J., Philadelphia, Harrisburg, Baltimore, Washington, Buffalo, Pittsburgh, Cleveland, Detroit, Cincinnati, Louisville, Chicago, Milwaukee, Minneapolis, St. Louis, Kansas City. Canadian Address: 81 St. Peter Street, Quebec.

Five typical letters from hundreds by satisfied Davey clients

Mr. William Almy, William Almy & Co., Boston:

"The skill of your workmen is remarkable. I am sorry I did not have this work done sooner as I apparently lost a tree by not having an expert examine my trees before."

Mr. Joseph Pulitzer, Jr., owner of the New York World and the St. Louis Post-Dispatch:

"Your work on the trees on my place was done in a most thorough and painstaking manner."

D. S. Chamberlain, President, Chamberlain Medicine Co., Des Moines, Iowa:

"I congratulate you on the excellent work you are doing. I have seen much of this character of work done in some foreign countries, as well as in the United States, but none as perfect, scientific and satisfactory as yours."

Dr. G. L. Doenges, Superintendent, The Johns Hopkins Hospital, Baltimore, Md.:

"We have been very much impressed by the work done here by the Davey Tree Company."

Mr. Robert E. Friend, Second Ward Savings Bank, Milwaukee, Wis.:

"I cannot commend too highly the work you have done both this year and last on our place at Pine Lake. Your work on the University Club trees here in the city, under my supervision, was also very good indeed."

Davey Tree Surgeons

FOR SAFE TREE SURGERY

Every real Davey Tree Surgeon is in the employ of the Davey Tree Expert Company and the public is cautioned against those falsely representing themselves





Grow GLADIOLI

100 Bulbs for **\$1.00**

The Best Summer Flowers
for Pleasure or for Profit

Have a Beautiful Garden from July to October

Gladioli make the showiest of beds and exquisite, long-lasting bouquets and are in enormous demand for cut flowers. You can now have a handsome big bed of these glorious flowers; all colors mixed, from white to crimson, as well as many beautifully variegated at almost no cost. As easy to grow as a weed. I sell good plump bulbs that will bloom this summer; importing in enormous quantities direct from reliable Holland growers.

John N. Fagan, 2829 Unruh Street, Tacony, Pa., says: "I had \$100 worth of pleasure. They are the largest and most beautiful I have seen."

Stores ask 25c or more a dozen. Many growers demand double last year's prices. Nevertheless I shall again, for the fourth successive season, continue my sensational and popular low-price offer while stock lasts. Here is my unbeatable offer.

20 Bulbs, 25c 100 for \$1.00 1,000 for \$8.00

W. R. Barington, Summit Hill, Pa., says: "The gladioli were most beautiful and displayed a riot of most charming colors."

You will say the same thing

As a lover of choice flowers, can you resist such a liberal offer when I give such amazing values and send the bulbs prepaid? Don't wait until stock is gone; order NOW.

CLARENCE B. FARGO Desk 6 Frenchtown, N. J.



(Concluded from p. 108)

last species having two varieties. Of the nut-bearing bushes, the filbert is practically the only one worth considering. Of these, the black walnut is the least exacting, and the pecan the most exacting, as, also, it is by far the finest of American nuts, if not of all nuts. The black walnut will grow from the Canadian line to the Gulf, and from coast to coast. The butternut, which is a variation of the black walnut, has a liking for hill and mountain country, and thrives throughout the northern tier of States. The shellbark and shellbark hickory will grow throughout the northern regions of the United States; being native, however, only in the New England and Middle Atlantic States, and in the more mountainous portions of the Southern States. This fine tree, which apparently seems to prefer riverbanks and creek-bottoms to other locations, will grow well on almost any soil, as its great root-system renders it impervious to the effects of drought. It is generally found along streams because the nuts which produced the trees were floated there and found congenial lodgment against the bank. The pecan, a truly superb nut, is strictly a Southern tree; and as yet has not been found to thrive north of North Carolina. Hardy varieties are now advertised; but their certainty to succeed in a cold climate has not been established.

Whenever you think of your children and grandchildren, plant a nut tree! Whenever you think of your own future, plant a nut tree! If you want good summer shade, plant a nut tree! If you want to gather on your lawn better nuts than the market can offer, plant a nut tree! If you want your work to outlast a hundred years, plant a nut tree!

A Question of Management

I AM living in the outskirts of a city of 100,000 and have a lot about an acre in area. I am desirous of keeping a gardener and would build a barn and keep a cow, chickens and pigeons. There is some available pasture fairly near. Would this be practical from a financial standpoint, when it is costing us about \$16.00 a month for milk, \$4.00 a month for eggs and \$12.00 a month for a gardener, a total of \$32.00? I intend to keep between 50 and 60 birds.—C. M. D., Ontario, Can.

—It is always difficult to give a definite answer to such a question since the success and profit of the plan would depend very largely upon the ability and energy of the laborer employed and all the other factors that make up the returns obtained from crops and stock. As a general thing, it may be estimated that it costs \$150 per year to keep a cow. The figures here show that nearly \$195 is spent for dairy products in this time which suggests economy in owning a cow. Fifty hens ought to be sufficient to supply the family's needs, and these should not cost more than \$1.00 each per year to maintain, which just about balances the present expenditure for eggs. Of course, practically all of the grain food for both chickens and cow will have to be bought, but by using a part of the acre for poultry runs and having other land available for cow pasture, it would seem as though the food costs might be kept down to normal limits. Of course, an acre is rather more than one might need for garden truck for summer consumption; but a good gardener ought to be able to raise on that space enough potatoes, roots, celery, etc., to lay in supplies for a good part of the winter as well.

LEARN To Speak Spanish In a Few Days

It is by far the most important foreign language to-day for all Americans—a truth that the present Mexican situation has merely emphasized. Whether you are a soldier, sailor, teacher, business man, or professional man—whatever you are, in fact—a knowledge of Spanish will be an immense advantage to you at this time. It will make things easier for you in a hundred ways and will put many dollars in your pocket. Remember that new avenues of trade are opening up every day with the Latin-American republics, and the man who can speak Spanish will be at a premium. You can soon become fluent—a little spare time daily makes you so—The Rosenthal Common-Sense Method of Practical Linguistry will teach you to speak, read, and write Spanish readily if you will devote *ten minutes* of your leisure time each day to this wonderful system which teaches you in the way a child learns to speak, by nature's method. Write NOW for free booklet, "Revolution in the Study and Teaching of Foreign Languages."

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It is easy to have fresh Strawberries almost every day from spring to late fall if you plant **Knight's Superb** and **Knight's Progressive Strawberry Plants** this spring. They will bear in a short time and will continue to fruit until frost.

Knight's Guide to Small Fruits is valuable to the home gardener and market grower. It tells how to raise Strawberries, Raspberries, Blackberries, Grapes, etc., and lists the leading varieties. Send for a copy to-day.

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BERRY PLANTS

SW Tuber-Tonic

Good for potatoes and bad for bugs

A three-in-one potato spray that kills insects, prevents blight and acts as a tonic to the plant.

Like all Sherwin-Williams Dry Powdered Insecticides, it is cheap to ship, easy to use, and cannot freeze.

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Fungi-Bordo

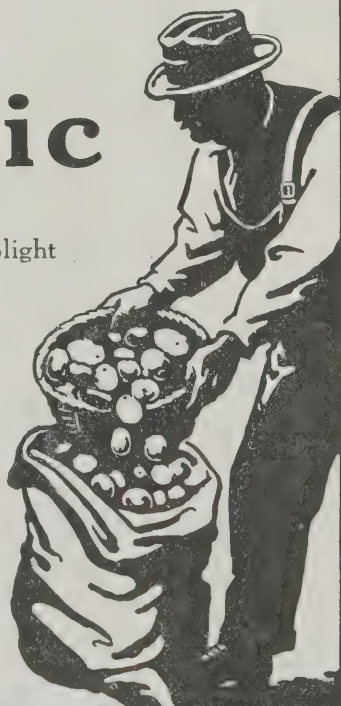
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Form

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Insecticide and Fungicide Makers
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Write to the Readers' Service for suggestions about garden furniture

Ferns and Flowers for Dark, Shady Places

WHY not start this spring and make a collection of American ferns and plants? If you have a woodland, even a very small one, you can develop a natural garden which will be the envy of all your friends.

Gillett's

Ferns, in over forty hardy varieties, and such plants as Hepaticas, Bloodroot, Native Violets, Lady Slippers, Trilliums, Dogtooth Violets, Solomon's Seals, Lilies, Cardinal Flowers, etc., will produce lasting results.

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Send for my illustrated catalog of over 80 pages which tells about this class of plants, also a long list of hardy perennials for the open border. **IT'S FREE.**

Edward Gillett, 3 Main St., Southwick, Mass.

A bed of Trillium grandiflorum growing in the woodland



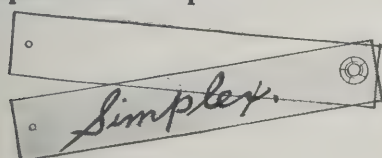
Strawberries

Make Big Profits

growing strawberries. Our illustrated Book of Berries for 1917 points the way. It is a complete guide for the amateur; a valuable reference book for the experienced grower. It's **free**. Write to-day for your copy.

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10 Strong Plants, Sure to Please
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SPECIAL COLLECTION OFFER

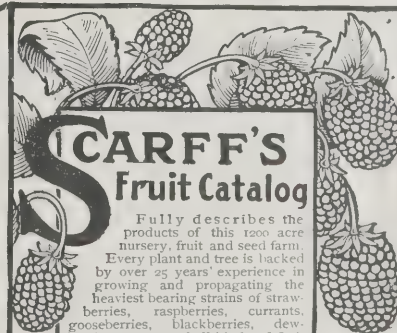
6 Carnations, all colors 25c.	6 Chrysanthemums 25c.
6 Beautiful Coleus 25c.	3 Lovely Dahlias 25c.
10 Lovely Gladioli 25c.	10 Superb Pansy Plants 25c.

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We pay all charges and guarantee safe arrival and satisfaction. A postal will bring you a beautiful illustrated BOOKLET FREE. Remember—we guarantee every rose to bloom this summer or your money back.

THE GOOD & REESE CO.

Largest Rose Growers in the World. Box 308, Springfield, O.



SCARFF'S Fruit Catalog

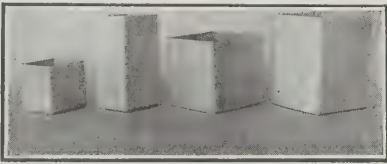
Fully describes the products of this 1200 acre nursery, fruit and seed farm. Every plant and tree is backed by over 25 years' experience in growing and propagating the heaviest bearing strains of strawberries, raspberries, currants, gooseberries, blackberries, dewberries, grapes and all kinds of fruit trees. Also garden plants such as horseradish, asparagus, rhubarb and field seeds. Do not buy until you see our prices. We supply growers everywhere and our stock is the best of its kind. Send for free beautiful catalog to-day. A fine currant bush sent free for names and addresses of five fruit growers.

W. N. SCARFF & SONS
New Carlisle Ohio



The Cloche Co's., March Bulletin

To the plan-ahead home gardener, March offers the long awaited opportunity to start actual planting operations—indoors. Secure some good soil from your florist, order Cloche Company's **Paper Pots**, as shown below, at once, and sow seeds of "long season" vegetables. These pots are substantially made from stiff manila board and are guaranteed to do the work well. **For Tomatoes** and other small seeded vegetables **size 3 x 3** will prove just right. Sow 2 or 3 seeds in each pot. For Sweet Peas, size 4 x 2 x 2 is just right. For smaller flower seeds, the size 2 x 2 x 2 pots will serve nicely.



Prepare NOW for Early Corn and Beans

As soon as your seeds reach you—certainly not later than March 15th—open the packages, select the plumpest kernels of your corn and beans and sow 4 in each 3" x 4" pot, as shown to extreme right. At \$1.50 per hundred, these pots will advance the season of maturity by at least two weeks—enough to save you ten dollars on extra early vegetables. Two other sizes of pots are available. Send for circular and free samples of any pots that interest you.

Miniature Greenhouses 75c. Each

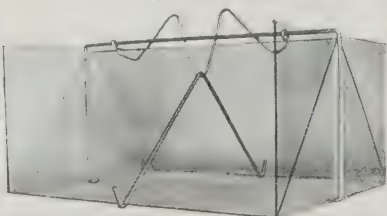
The model of "Groquick" Forcer, shown below, is the latest step in development of these handy helps to home gardeners. Three wires and four pieces of glass completely enclose a space eleven inches wide at base and seven inches high. Just the thing to ward off late frosts from the melon or cucumber patch! Ideal for gathering additional heat on sunny days to hasten the crop. Price 75c. each, complete with wire and glass. \$8 per doz.

Other Useful Accessories

of value to home gardeners everywhere are fully described and pictured in a neat little folder for which please send. We carry the latest and best in Cultivators, Lawn Sprinklers, Bloom Protectors, Celery Bleachers, Lawn Trimmers, besides a full line of "Grow-Quick" plant forcers for every purpose and at all prices. We try to serve GARDEN MAGAZINE readers in the capacity of a National Department Store of New Garden Accessories. Please think of us as such and write today—"lest you forget."

The Cloche Co.,

131 Hudson Street, New York
Phone, 5220 Franklin



Roses for Washington Conditions

Managing the Roses

IT WOULD be well nigh impossible for any one person to choose the best Rose for any given locality, for no one person is likely to have thoroughly tried out all varieties; and moreover, each individual has his or her own preference in regard to color, form, habit, etc. I do not, therefore, attempt to say what variety is best for Eastern Washington and the Inland Empire. From my own experience, however, and from my observations in the gardens of others, I can state what I believe to be the finest Roses for general garden culture in this locality.

The standard varieties which I, myself, have planted and thoroughly tried out, are Madame Caroline Testout, La France, Paul Neyron, Lyon, Betty, White Maman Cochet, Frau Karl Druschki, Hugh Dickson, Gruss an Teplitz, Madame Second Weber, Killarney, and Marechal Niel. I do not include any of the Ramblers, nor so-called June Roses which do well as a rule.

Of those mentioned, and they are all good, I should unqualifiedly pronounce Madame Caroline Testout the best in every way. It is a sturdy, vigorous grower, and is equally good as a specimen plant as in a hedge. The stems are long, the blossoms full, and every petal of a surpassingly rich, though delicate shade of pink and exceptionally free from discoloration or other blemishes. It lasts well after cutting and even in midsummer a vase of Caroline Testout should last nearly a week. Like most Hybrid Teas, it is a free and perpetual bloomer producing flowers in abundance from June until mid-October.

Next to Caroline Testout, I should place Paul Neyron. Although not nearly so free a bloomer as my first choice, the size and beauty of the flowers, often five and six inches in diameter and the unusually long stems (I have cut them over four feet long), make it a striking and valuable Rose for cutting or for exhibit. Of the white Roses, Frau Karl Druschki is the best though not quite so free a bloomer as might be desired. It does better, however, than most H. P.'s.

La France, one of the finest of the Hybrid Teas in some localities and a well known favorite, is seemingly not suited to this dry atmosphere. The petals are very delicate and easily discolored by hot winds or dust. In the early autumn days, La France improves, but in the summer time I am seldom able to find flowers suitable for exhibition. Marechal Neil (Noisette) is also unsatisfactory, as it is too tender.

Of the red Roses, Hugh Dickson (H. P.) seems to be the most satisfactory. It has the most delicate perfume of any variety.

Washington.

H. E. WATERBURY.

TO TRY to raise many Roses without frequent spraying would be to court disaster, for insect and bacterial enemies are persistent and destructive. The best sprayer is one of the compressed air type, having an automatic nozzle that can be controlled by one hand, leaving the other free to turn back the bushes so that the under sides of the leaves can be sprayed. For the green fly or aphid a paper of strong smoking tobacco steeped in a gallon of water makes a cheap and efficient spray where commercial nicotine sprays cannot be procured. Whale oil soap solution is also good for exterminating plant lice, or they may be driven off the plants by frequent use of the hose, using a fine spray nozzle. As these insects suck the juices from the tender tips of the plants and do not eat the leaves, poisons are useless, the best remedy being something that will kill them by contact, and nothing excels tobacco either in solution or dry powder.

A combined arsenate of lead and bordeaux mixture spray, procurable from dealers in spraying materials, will both kill all leaf eating larvæ and prevent mildew and other fungi if applied regularly every two weeks throughout the season. If mildew appears, dry flowers of sulphur should be applied immediately to the affected leaves. Potassium sulphide (liver of sulphur), one-half ounce in a gallon of soft water, dissolved fresh each time, should be sprayed every few days as long as the mildew persists. This is a positive remedy. As mildew is the most destructive pest, as well as the hardest enemy of the Rose to combat, the importance of early application of sprays and persistence in the use of effective measures of eradication cannot be over estimated.

Aphids are easily destroyed by gently stripping the infested tender tips with the thumb and forefinger, their bodies being easily crushed by the process. The presence of various green worms, the larvæ of many species of insects, is usually detected by the curled leaves in which they hide. If these are watched for carefully and crushed by the fingers as soon as they appear there may be no need of using poisonous sprays or dusting with hellebore. My own experience with hellebore is quite disappointing, and I find that nothing is quite so effectual as hand crushing.

The common rose beetle, that reprehensible bug that eats the very heart out of the choicest Roses, can only be controlled by hand picking and as he prefers white blooms to colored ones it is well to have an occasional bush of some free flowering white variety, such as Clotilde Soupert, for his allurements.

Pennsylvania.

H. G. READING.

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Old-fashioned Flowers, Delphiniums, Peonies, Iris, Foxgloves, Holly-

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The Fruits I offer are selected varieties which resist extreme cold. Those that easily winter kill are not included. Don't fail to see our new catalogue before placing your spring orders. Prices are very low, considering the quality of stock. Ask for catalogue N.

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Seeds
That
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In Sutton's Catalogue are Choice Flowers and Vegetables Found Nowhere Else

YOU who have favored us by coming to our beautiful, garden graced England know fully well the surpassing beauty and charm of its flowers.

You Americans, so we understand, sometimes think of us as being a bit stolid, and lacking in enthusiasm. But surely no nation, so enthusiastically fosters, or more genuinely loves flowers.

Every little town has its liberally patronized flower shows.

In this exceptional environment, the Sutton family have

been growing, developing and perfecting seeds for generations.

Very naturally, it has resulted in being more than a business with us. It is a life work of genuine pleasure.

This pleasure, we would share with you in the wonderful charm of our flowers and the surpassing varieties of our vegetables.

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Send 35c for Garden Guide. When your orders total \$5. the 35c will be promptly refunded.

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Exquisite tints of orange, salmon, ecru, white, cream, with scarlet and maroon veinings and markings, will be found in this collection of

Primulinus Hybrid Gladioli

The flowers are large, carried on long straight spikes that are superb for cutting. The bulbs are grown at Meadowvale Farms, and are of blooming size only.

**One Hundred Bulbs
In Many Varieties for \$15**

A box of these bulbs will make splendid presents for your garden-loving friends.

THE GLORY OF THE GARDEN

my Gladiolus booklet for 1917, will be mailed to you or your friends, if you will send me the correct name and address. Bulbs should be ordered soon—so it will be well to send for the booklet to-day.

ARTHUR COWEE, Meadowvale Farms, Box 203, Berlin, N. Y.

Wheel Hoes

THAT the gardener has a wheel hoe of some kind almost goes without saying. That he knows just how to use it doesn't always go that way. I've found some helps from experience and other wheel-hoers' experiences that have saved me a lot of time and made a good many better jobs than I would have had without.

The two six or seven inch blades that are a part of every wheel hoe proper are used very likely a good many more times than all of the other attachments together. They can be used in most kinds of work. But with us there was an objection to them because they left the soil unbroken and so many weeds lived even after they were cut off simply because the thin slice of soil left by the hoe was just enough to keep the weeds going till it rained. So we took a good piece of board about six inches by two by one and a half, made a bolt hole through the centre to fasten this to the wheel hoe frame, bored six $\frac{1}{8}$ inch holes through the piece at right angles to the bolt hole, ran wires of about No. 8 size through them and sharpened the end of the wires so that they made a sort of rake which followed a few inches behind the blades. The wires were of different lengths so that there was no trouble about clogging with weeds. This leaves the surface as smooth as could be desired and breaks up the slice of soil so that the weeds are killed and the soil left with a dust mulch.

I find that if a wheel hoe is run when the ground is slightly damp there will be a certain amount of soil sticking to the tires. This will make small bumps that will throw the hoe out of balance just enough to spoil the work as long as the lumps are on the tires. I keep a dull knife handy for scraping this dirt off. It pays to do this several times or until the dirt stops gathering on the wheels.

I have found a deep cigar box or any sort of a box mighty handy when fastened to one handle of the hoe. There is apt to be some trash or straw on the surface of the most carefully prepared seed bed. It can be quickly dumped in this box and carried to the end of the field and by simply turning over the hoe the contents dumped where they will not harm anything.

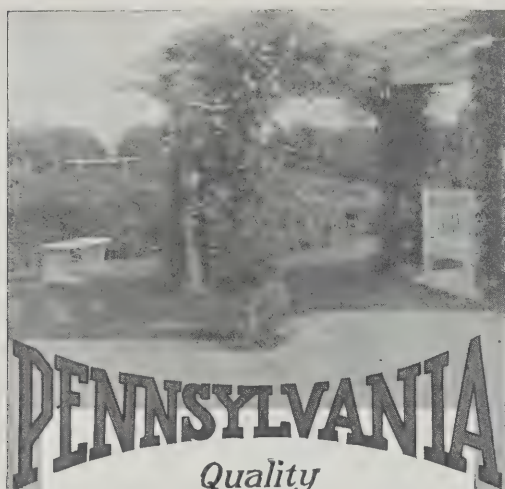
As a part of every blade of the wheel hoe there is an upright part that is intended to allow close cutting to the row and to prevent some dirt from tumbling onto the small vegetables. If this is left with a sharp edge it will do a lot of harm in a good many kinds of work after the vegetables get closer to maturity. Blunt this edge with a file or grinding machine and save considerable of the crop you are tending.

After using a wheel hoe for a few years it becomes worn and loose in the spindles. This with the blades is the only place that a wheel hoe wears out. I have found a considerable help in using a heavy piece of tin as a washer to take up this wear. A wobbly wheel makes sure, quick and accurate work almost impossible. Steady, firm wheels will also help it a lot.

When you have to have the blades renewed at times it is a pretty good plan to get them an inch or so longer than you expect to use. Usually a six inch blade will leave strips of uncultivated surface between the rows if the drilling wasn't exactly straight. The longer blade will get these places. Besides that it will wear longer because it is wider when first purchased.

Ohio.

R. E. ROGERS.



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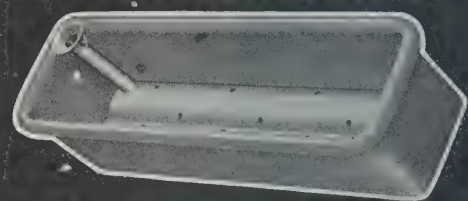
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waters the growing plants from the bottom making longer roots and better plants, leaving top soil mealy and loose. Pour water in the tube once a week. Perfect air circulation and drainage.

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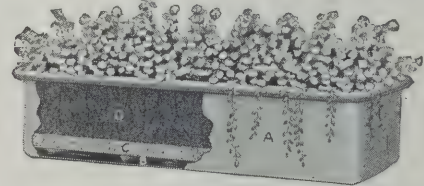
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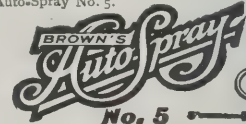
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A—Outside body of box. B—Water in the double arched reservoir. C—Layer of coarse gravel over perforated arches. D—Soil above with growing plants.

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It's Double Acting The Same Spray With Half the Labor

Double-acting feature makes spray continuous. Any variety of spray—for trees, or bushes close at hand. Actual test showed pressure of 180 lbs. per square inch without extra effort. This means power to turn and thoroughly saturate leaves with the solution.

The All-Purpose Sprayer for trees, shrubs, plants, potatoes, etc. Furnished with convenient knapsack tank if desired.

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If a problem grows in your garden write to the Readers' Service for assistance



Is your garden a joke?

The manual for March is made up of three articles under the group title of "A Palette for Garden Making." These articles are written to direct you toward successful gardening, and away from the garden that is merely a collection of flowers.

128 color pictures illustrate the text, and all the information necessary to the planning, planting, and upkeep of the garden is included. With this manual as a guide you can bring to successful maturity any flower that lends itself to your local conditions.

Nearly a score of other articles follow, each of which will help you get more out of life in the country.

The manual for April is on Quality Fruits for the Home Orchard, and is as complete as the manual for March. These two articles are of exceptional value to those interested in gardening, and the short term offer includes them both.

THREE OF THE COMING MANUALS ILLUSTRATED IN COLOR

Quality Fruits for the Home Orchard

April

What a Decorator Would Do
for Your Summer Home

May

The Rose for America

June

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The New Country Life

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Gentlemen: Send me the March, April and May numbers of The New COUNTRY LIFE. I enclose \$1.00.

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G. M. 3-17



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Here is the best way to buy. By paying 25% of the price of your house we will prepare and hold it until wanted. This saves you money and insures prompt delivery. Our catalog is illustrated with photographs—and prices, too. Send for it.

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This new rose, originating in "the Land of Sunshine and Flowers," is an American Rose for American Gardens. It is surpassingly brilliant in color, beautiful in form and exceedingly free in bloom.

The editor of the American Rose Annual says:

"The plants you sent in March of your American-bred rose 'Los Angeles,' have grown astonishingly, and the gorgeous flowers of sunshine and gold fairly glow with beauty, by daylight and night. I am delighted."

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New in Color—flame pink, toned with coral, and shaded with translucent gold at base of petals.

Profuse in Bloom—an unbroken succession of large, perfect flowers from early summer to late fall. From bud to bloom it is unsurpassed.

Strong in Growth—tall, vigorous canes, each one bearing a large number of superb flowers. Foliage mildew-proof.

We will send strong two-year plants to any part of the United States for **\$2.00** each

Larger quantities at same rate. These plants are cut back to 18 inches, and will bloom this year. Cultural directions with each plant.

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This mixture of gigantic, orchid-flowering sweet peas contains the finest SPENCER varieties in all shades from purest white to darkest crimson.

This is our 1917 special offer. We will send the quarter pound of Sweet Peas postpaid to any place in the United States or Canada, together with a copy of our

New Garden Guide

containing full cultural directions. This guide also describes and illustrates the best in flowers and vegetables, and gives many helpful suggestions for successful planting. March sowing insures success with Sweet Peas. Mail your order to-day.

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Ask now! This beautiful 66-page four-color book describes 1917 varieties vegetables and flowers; handsomely illustrated; beautiful home grounds, flower and vegetable gardens, landscaping, shrubbery, orchards, farms. A dictionary on gardening! Flower lover's delight! Berry grower's book! An orchardist's manual! Most wonderful gardening guide catalogue ever published.

ished. Better than our famous 1916 book. Don't miss it. Ask to-day. A postal gets it

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The House of ASTERS

There are many reasons for the growing vogue of these favorite blooms. We are specialists in reliable asters, and can give you anything in this line you may want.

As a trial, we will send our

"MASTERPIECE" Asters

in 3 packets—white, pink, and blue. Regularly sold at 20c each, value 60c, for **25c**

GLADIOLI—Special Offer

50 W. & D. Matchless (Mixture) . . . **\$1.00**

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109 Chambers St. New York



Making and Using Paper Pots

GARDENERS who have facilities for starting plants in advance of the outdoor season—greenhouse, hotbed, cold frame or even a tall sunny window—can use paper pots to great advantage. The kind that is made by folding an oblong piece of paper around a block of wood and clinching a small tack through the bottom folds to hold it together is both cheap and effective. They can also easily be bought ready made, in regular pot shape. The one objection that I have found to the homemade kind is that they are hard to take care of if made in large numbers in advance. Being of the same diameters at the top and at the bottom, they cannot be nested, and thus take up a good deal of room. On the other hand, this shape is an advantage because it permits them to hold the maximum amount of soil for the surface space they occupy. This enables them to receive and retain more moisture and permits a greater root growth than tapering clay pots do. The difference in earth-holding capacity is really surprising. For instance, a paper pot folded over a block $3\frac{1}{2}$ by 4 inches will hold as much as a standard five inch clay pot, and will occupy a surface space 4 by 4 inches, while a five inch clay pot will occupy a space $5\frac{3}{4}$ by $5\frac{3}{4}$ inches.

It is said that paper pots of this kind will last six weeks, which, of course, is generally long enough to carry plants to the season of outdoor setting. But they will really last six months if properly handled, and, fortunately, the proper way is the most convenient way. This is to keep them in flats. The pots may be made to fit the flats, or the flats to fit the pots, just so the fit is comfortably close without binding. A flat 12 by 18 inches will take care nicely of a dozen pots folded over a $3\frac{1}{2}$ by $3\frac{1}{2}$ inch block; and a flat 8 by 12 inches will hold fifteen pots folded over a 2 by 2 inch block.

Place the pots in the flat before you fill them with soil, and press the soil down gradually and evenly so as not to force them out of shape. They cannot be packed as firmly as clay pots can be, and for this reason they should be level full when the planting is finished. After two or three waterings the soil will settle so as to leave ample space for top watering if desired. The better way to water, however, is to set the flats in a trough or large pan that will permit the water to come nearly to the tops of the pots—the nearer it comes, the more quickly the work will be done. The water will find its way through the folds of the paper, and rise through capillary attraction even above its own level. When the soil is thoroughly saturated let the flats drain for a while before placing them in the frame. By this method you can put either seeds or plants in perfectly dry sifted soil and be sure that it is well and evenly packed and watered. The same plan is desirable for subsequent waterings as it keeps the plants dry and tends to lessen the danger of damping off.

The paper and wooden blocks for making these pots may be either bought from several different dealers, or provided easily at home.

(Continued on p. 118)



**Have
Summer
Vegetables
All Spring**

BLESSED is the family that owns and runs a Callahan Duo-Glazed Hotbed Sash Outfit.

They have fresh vegetables in abundance when others have none, or pay high prices for stale and wilted ones.

Callahan's

Duo Glazed

Hotbed and Cold Frame Sash

gives pleasure, health and profit. No danger of losing the fruits of your labor, because these sash are insulated against cold by double glass and an air space between—Jack Frost simply has to stay out!

Built of "everlasting" Red Cypress—the wood that defies decay.

Sizes to suit every plan and purse—Two Sash 3' 0" x 3' 3" with top frame and glass for two layers, \$8.85, or top frame, two large sash 3' 0" x 6' 0" and glass \$13.45. Callahan Garden Frames furnish your table all the year round. Ask for catalogue.

Every new and modern convenience is found in Callahan Sectional Greenhouses. Catalogue free upon request.

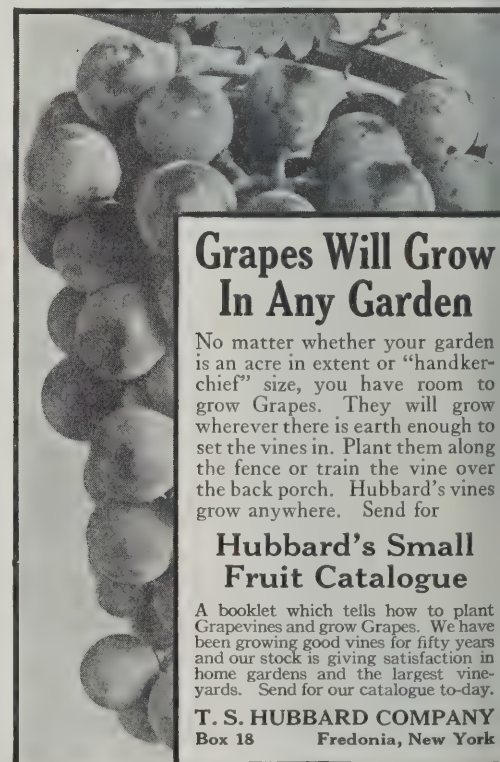
Callahan Duo-Glazed Sash Co.,
1350 Wyandot St. Dayton, Ohio.



\$150.00 in Gold to the Winners!

Think of it! Large tempting, red strawberries 1 month every year, and a chance to win cash prize. **EARLY, LATE, EVERBEARING.** Grow for home and save money; grow for market—make money. Our free book on strawberry culture tells how—so plain a child will understand. 60 years' experience. Full information. Write today.

J. T. Garrison & Sons, Woodstown, N. J.



Grapes Will Grow In Any Garden

No matter whether your garden is an acre in extent or "handkerchief" size, you have room to grow Grapes. They will grow wherever there is earth enough to set the vines in. Plant them along the fence or train the vine over the back porch. Hubbard's vines grow anywhere. Send for

Hubbard's Small Fruit Catalogue

A booklet which tells how to plant Grapevines and grow Grapes. We have been growing good vines for fifty years and our stock is giving satisfaction in home gardens and the largest vineyards. Send for our catalogue to-day.

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Save time—labor—money! Trees planted in blasted ground grow faster, healthier and bear earlier and heavier. Get ready now for spring planting. Last year thousands of farmers and orchardists who wanted to plant in blasted ground had to plant in the old way because they failed to order in time a supply of



Red Cross Farm Powder

Explosives are slow shippers. They require from 4 to 6 weeks for delivery. If your dealer does not carry Red Cross in stock, don't take chance on delay. Now is the time to place your order with him.

Get the Full Information

Learn how to use Red Cross Farm Powder and what it is doing for thousands of farmers and orchardists everywhere. Our book is a modern education in up-to-date methods of tree planting, orchard rejuvenation, stumping, sub-soiling, ditching, etc. You ought to have it. Send now for

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earlier than you ever had before.

THOUSANDS

of up-to-date gardeners are making big money—you can do the same. Don't be satisfied with a garden like the other fellow—beat him to it. Have a garden that you'll be proud of, a garden that will bring the admiration of your friends. No matter how backward the Spring, it's easy with

THE BALL SEED & PLANT FORCER

for my Beautiful **BOOK FREE**. It's chock full of the latest developments in modern gardening. It gives gardening information found in no other publication. It tells you how you can have a garden with flowers in full and vegetables for your table a month earlier than you had before. Just drop me a post card and I'll send your copy by return mail.

THE BALL MFG. CO., Dept. E, Glenside, Pa.



Plant Your Garden the

PAKRO SEEDTAPE

Way This Spring

Try this better way of planting your garden.

Get some Pakro Seedtape from your dealer and just plant the tape, a whole row at a time, at the depth stated on each package, moisten well and cover with earth.

Pakro Seedtape consists of selected seeds spaced exactly the correct distance apart in a thin paper tape. Pakro Seedtape gives you a better garden with less labor because of the following advantages:

- 1—Thoroughly tested seed.** Every variety grown especially for us and selected by experts from the very best prize-winning strains.
- 2—Saves time and labor.** You can plant a whole row at a time instead of a few seeds at a time, and be sure of getting straight rows and a fine, even stand.
- 3—More economical.** Only enough seeds are planted to insure proper growth.
- 4—No thinning out required.** Proper spacing of seeds in tape makes this labor unnecessary.
- 5—Pakro grows better.** The paper tape absorbs and holds moisture around the seed with the result of a quicker and higher percentage of germination and a stronger plant life.

Pakro Seedtape comes in 30 varieties of vegetables and 18 varieties of flowers. Get it from your dealer. Write for our beautifully illustrated free catalogue.

Introductory Offer

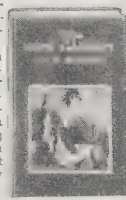
\$1.30 Worth, For **50c**
In Canada, 60c

Mr. E. L. D. Seymour has just written a delightfully interesting book for Home Gardeners.

It tells in simple terms how to plan your garden, just when to plant the different Vegetables and Flowers and just how to plant them. It gives authoritative and exact information that is easy to follow and that should be in the hands of everyone desiring to have a successful Home Garden.

Mr. Seymour is the author of "Garden Profits," "The Garden Almanac," and is Associate Editor of the "Garden Magazine" and "Country Life in America."

The book is beautifully bound in boards, splendidly and abundantly illustrated in colors, and its regular price is \$1.30. We will be glad to furnish those interested in the better Pakro Seedtape way of planting with a copy of Mr. Seymour's book and 3 packages of Seedtape, totaling in value \$1.30, for 50c. Simply send post office money order or stamps to-day for the book and Pakro Seedtape.



FLOWERS
10c. per Package
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Alyssum, Sweet
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10c. per Package
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Beet, Crimson Globe
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Cabbage, Jersey Wakefield
Cabbage, Premium Flat Dutch
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Carrot, Oxheart
Celery, White Plume
Endive, Green Curled

Kohlrabi, Early White Vienna
Leek, Large Flag
Lettuce, Big Boston
Lettuce, Black Seeded Simpson
Lettuce, Trianon Cos
Onion, White Portugal
Onion, Yellow Globe Danvers
Parsley, Double Curled
Parsnip, Hollow Crown
Pepper, Large Bell
Radish, French Breakfast
Radish, Icicle
Radish, Long Scarlet
Radish, Scarlet Turnip White
Tip
Spinach, Long Standing
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Tomato, Beauty
Tomato, Ponderosa
Tomato, Stone
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A LAWN EXPERT will answer your lawn questions and advise how to get the best lawns through the Readers' Service.

If You Love Your Garden

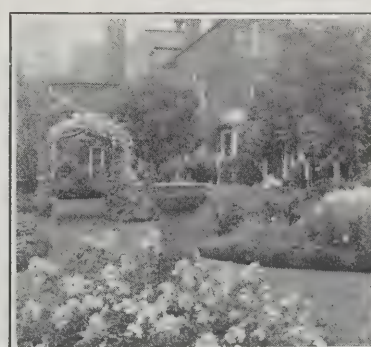
WRITE for our catalogue of plants, trees and flowering shrubs. It tells you what to plant and where and when and how. Shows how to get uninterrupted joy from your garden from spring till winter. Brings Wagner Landscape Service to your assistance in solving difficult planting problems.

We have tried to make it the most helpful manual ever published for the home garden maker. A copy will be sent free on request. Write for catalogue 47.

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A Better Lawn At Less Expense

THE Fuller & Johnson Motor Lawn Mower is designed for the large lawn with numerous flower beds, shrubs and trees, where great flexibility as well as large cutting capacity is required.

This wonderful mower is large enough to cut five acres a day yet light enough not to mar the turf, and so extremely flexible that it will cut close up to and around trees, under shrubbery and along walks and driveways thus entirely eliminating the necessity for cleaning up afterwards with a hand mower. The

FULLER & JOHNSON MOTOR LAWN MOWER

is backed up by 70 years' reputation of the Fuller & Johnson Mfg. Co. for the highest manufacturing integrity. It is scientifically designed and built as a complete unit. Indeed its balance and the details of the mechanical features of the mower have received as close consideration as has the motor itself. If it were possible to dismember this wonderful Motor Lawn Mower before you, you would marvel at the extraordinary thought and study given to the planning of its smallest feature—the infinite care used in the finishing and adjusting of its smallest part—yet its greatest characteristic is simplicity.

Write us now before Spring arrives for full information and a copy of "A BETTER LAWN"

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*Specially
designed
for use in
Private
Estates,
Parks and
Cemeteries*

The Readers' Service gives information
about Gardening

ROSES of New Castle

THESE famous hardy, free-blooming Rose plants, grown to perfection in the best Rose-growing soil in America, are by far THE BEST FOR HOME PLANTING. Always on their own roots. Once planted they will last a lifetime. Our great 1917 book, entitled

"Roses of New Castle" gives expert advice—the experience of a lifetime—and describes these famous hardy Roses. Tells how we prepay all shipping charges anywhere in the U. S. Safe arrival guaranteed. Write for this beautiful book, the most instructive of its kind published. IT'S FREE.

HELLER BROS. CO.
Box 321 New Castle, Ind.

(Concluded from p. 116)

The block of the size desired has a small hole bored through it from end to end. Through this is passed a long bolt that extends also through a table top, or a board that may lie in the lap, and is held loosely in place, so that the block may be revolved by a nut on the lower end. The oblong piece of paper—heavy manila or jute, but not heavy enough to crack when folded sharply—is somewhat more than the height of the block plus half the width; and is sufficiently long to fold round four sides of the block starting in the middle of one and lapping over almost half the next. The paper extending above the top of the block is then folded against it in the way that the end of the wrapper of a package is folded and turned down and a shoe tack about a quarter of an inch long driven through the folds and clinched against the top of the bolt. The pot is then slipped off of the form, and is ready for use.

When setting out time comes let the soil dry a little to prevent crumbling. Peel the paper off of the block of earth, set it in a hole prepared for it and pack the earth snugly around it. Plants may be thus set out in the hot sun of midday and they will not wilt because their roots have not been disturbed, and consequently have not suffered the loss of their hair-like feeders, which is inevitable in ordinary transplanting. If preferred, the plants may be set without removing the paper. It is a good plan to do this if cut worms are feared.

HORTULUS.



Why Garden Soils Need Nitrates

NITROGEN is one of the most necessary of plant foods. For the quick and successful growth of vegetables, garden soils must possess nitrogen in readily available form. This can be provided by some form of easily soluble commercial nitrate. Either dried blood, sulphate of ammonia, or nitrate of soda may be used.

For ordinary garden crops, nitrate of soda is the best of these nitrogenous fertilizers. Its use not only provides a nitrate immediately available for growing vegetables, but it tends to correct soil acidity better than either of the other forms. Nitrate of soda, however, should be used in connection with some form of organic material, such as farm manure, crop refuse, weeds or green manuring crops. If used together, commercial and organic fertilizers provide the soil with nitrates throughout the growing season.

There is a very important scientific reason for this combination. In the spring and early summer, very little nitrogen in soluble form is available for growing crops in garden soils. What remained of available nitrogen not utilized by plants during the preceding growing season the soil loses during the winter and early spring either by drainage or by leaching. For the first few months of crop growth nitrogen in readily available form must be supplied, and nothing is better for this purpose than nitrate of soda.

But if this commercial fertilizer is applied

(Continued on p. 120)

Your Lawn Needs Rolling



Before Rolling

Frost heaves the sod leaving it full of cracks in which roots will dry out and die.



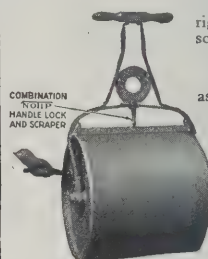
After Rolling

Rolling settles the sod back and packs moist earth around the roots giving them a quick start.

DUNHAM WATER WEIGHT ROLLER

(TRADE MARK)

The steel drum can be filled with water, giving any weight to suit soft lawns, firm turf, or tennis court. When empty the roller is light and easy to handle.



NoTip Lock holds the handle upright when not in use and the scraper cleans off leaves and dirt.

Axle is fitted with roller bearings.

See the roller at your dealers and ask him for **Free Lawn Book**.

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Would you have a Real Lawn?

Most of the component parts of a grass seed mixture which would produce such a lawn are grown only abroad.

our well-known imported, hardy, lawn seed mixtures at practically no advance in prices.

Order now—the supply is limited. But the quality is very choice.

Despite war conditions, we offer

Prices reasonable. Send for lawn folder.

Barwell's Agricultural Works
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Make Your Gardening Profitable and Easy



The **BARKER** Weeder, Mulch and Cultivator

3 tools in 1, cuts the weeds under ground and works the surface crust into a moisture-retaining mulch—intensive cultivation. Only garden tool that successfully in one operation, destroys the weed and forms the necessary soil mulch. "The Weed Killer Ever Used." Has shown for deeper cultivation. Self adjusting easily operated, inexpensive. Write for free illustrated catalogue and special Factory-to-User offer.

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about Greenhouses and Sash

Strawberries



EVERBEARING AND OTHER KINDS

Also Headquarters for Raspberries, Blackberries, Currants, Gooseberries, Grape Asparagus, Fruit Trees, Roses, Shrub Seed Potatoes, Eggs for Hatching, Crate Baskets, etc. 34 years' experience. Catalogue free. Write to-day, address **L. J. FARMER, Box 729, Pulaski, N.Y.**

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Dreer's Vegetable Seeds

have 79 years of experience back of them, and in no other business is expert knowledge so necessary. You can materially reduce the high cost of living by having a garden and grow your own vegetables.

Dreer's Lawn Grass Seeds

are blended from the highest grade seeds of strong vitality. Let us send you our booklet on Lawn Making—free.

Dreer's Garden Book for 1917

is declared by a legion of enthusiastic gardeners to be the most complete and valuable reference, both on growing vegetables and flowers ever issued. Colored and duotone plates—over a thousand illustrations. Lists everything worth growing, both novelties and standard varieties. A copy sent free if you mention this publication.

Dreer's All Heart Lettuce—is the most dependable hard-heading lettuce ever introduced. Magnificent large yellowish green heads with extremely solid heart. Flavor rich and buttery. Slow to run to seed even in hot weather. **Packet, 10 cents.**

HENRY A. DREER
714-16 Chestnut St., Phila.

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Many varieties of Water Lilies can be grown in a pool (or tub) just as well as in a small pond. Every garden has soil, water, and sunshine—all the lilies need. They grow as readily as asters or sweet peas—and are far more beautiful, fragrant, and unusual. If you have a greenhouse you can have blooms all the year. My new booklet

Water Lilies and Water Plants

pictures several varieties in nature's glorious colors. The best sorts for garden and greenhouse growing are described. Full directions are given for constructing a water garden, with a list of plants that will be useful with the lilies. Write to-day for a copy of this booklet and plan for a water garden this summer.

WILLIAM TRICKER, Box E, Arlington, N. J.



For YOUR Garden

Delicately nurtured roses, propagated in hot greenhouses, are not suitable for planting out-of-doors. Even if they do not die at the first touch of frost it will take them years to get acclimated so that they will bloom freely. What you want for your rose garden is plants that have been grown under conditions similar to what you can offer them.

Fairfax Roses

are propagated under natural conditions and wintered out-of-doors. They are hardy and vigorous, immune to frost and snow, and should thrive in YOUR garden as well as they do in ours. They will bloom luxuriantly the FIRST season—rich, rare blooms full of color and perfume—without special care or nursing.

1917 Rose Book Free

My new Rose Book tells you how to grow roses successfully and if you follow directions you can have a superb rose garden this summer. Write for a copy—it's free.

If you are having trouble with your roses that you do not understand write me about it and I will gladly advise you what to do.

Fairfax Sunburst

The Queen of them all! An exquisite copper yellow, beautifully shaded.

2-year old plants for spring delivery **50c**

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Box 6, Oakton, Fairfax County, Va.

Three Rarely Beautiful Roses

In this trio of superb Climbing Roses is a whole June-ful of joy for the rose-lover. They are widely different in color and form of flower, but are united in beauty and loveliness. The three were originated and introduced by the West Chester Nurseries—which vouches for the value of this new trio.

Climbing American Beauty. Huge flowers, 4 inches across; handsome rosy crimson; fragrant. Plants are strong growers, covered with flowers.

Christine Wright. A wonderful clear pink Rose, usually 4 inches in diameter. Beautiful in bud and flower.

Purity. Pronounced by experts the most beautiful climbing Rose. The broad petals are ivory white, with stamens of bright golden yellow. The flowers are large and borne abundantly on strong plants. Purity is sold in this collection only.

3 Plants, One of Each, Delivered \$5

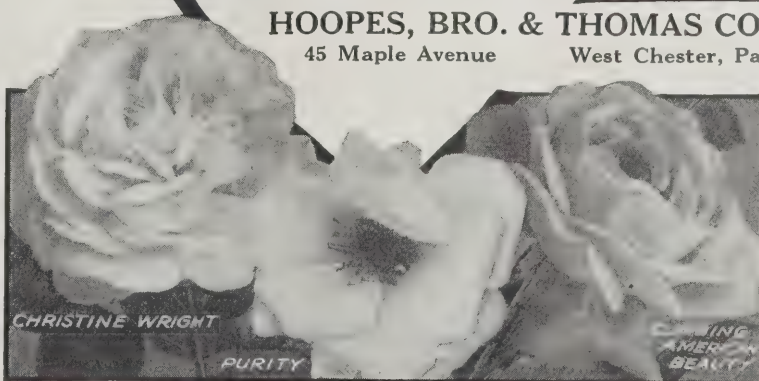
"Hoopes' Specialties"

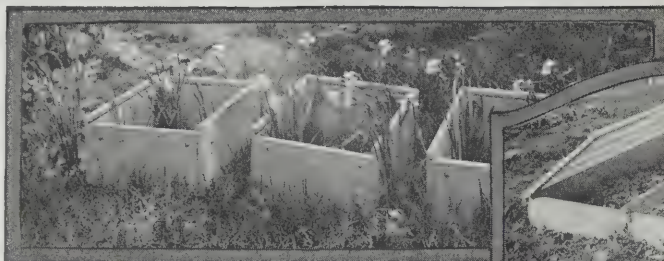
shows Climbing American Beauty, Christine Wright and Purity in their marvelous natural colors. The booklet is a real aid to rose-growers, and lovers of beauty on the home grounds. Send your name and address for a complimentary copy.

HOOPES, BRO. & THOMAS CO.

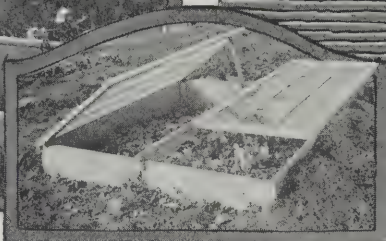
45 Maple Avenue

West Chester, Pa.





These little Handy Andy frames are 11 x 12½ inches. 10 of them cost only \$7.50. Price includes glass and cast iron corner cleats and all bolts.



This two sash frame is about 6 feet square. Costs \$16.34 complete. The 3 x 6 feet sash cost \$4.24, separately. Double light same size, each \$5.45.

It's Cold Frame Time— Start Your Garden Now —Send for Booklet

THIS new booklet No. 215 tells you exactly how you can, with surprisingly little trouble, have a winter garden under glass. One from which you can be having vegetables and flowers weeks before seeds are even planted outside. It shows you how to get a running start on your outdoor flower and vegetable garden; and how

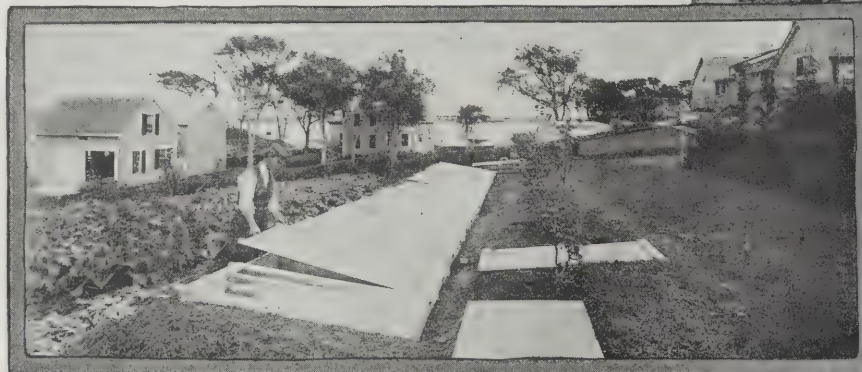
to boost it busily after it is started. Dame Spring comes late nowadays. The use of frames is the way to overcome her exasperating laggingness. They turn garden uncertainties into certainties. The booklet tells you what, when and how to plant.

Order the sash and frames early. Get started. Send for the booklet.

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Builders of Greenhouses and Conservatories

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 FACTORIES: Irvington, N. Y. Des Plaines, Ill. St. Catharines, Canada



With a row such as this, it's like having a goodly sized greenhouse. Junior Sash 34 x 38 inches cost \$2.42 apiece. Standard Sash 3 x 6 feet cost \$4.24 apiece. Double light 3 x 6 feet cost \$5.45 apiece. Price on different length of frames given in the Booklet.



(Concluded from p. 118)

with organic manures, the two supplement each other in providing the soil with plant food for the entire season. Nitrate of soda is readily soluble and the nitrogen in it immediately becomes available for the crop. Not so, however, with organic manures. To make their contained nitrogen available to plants, the activity of nitrifying soil organisms is necessary. But when garden soil has a temperature below 50 degrees F., these organisms are practically dormant. As the soil temperature rises with the progress of summer, the nitrifying organisms become more active and change the nitrogen of organic manures into nitrates. While these forms are readily soluble, the season is well advanced in northern climates before the nitrogen of organic manures is made available for garden crops; so that if early vegetables are desired, some form of commercial nitrate fertilizer should be applied to the soil.

In growing vegetables in the home garden use in connection with nitrate of soda, poultry manure compost as the organic material. This is composed of straight poultry droppings and waste material from the scratching pen. This combination has given quick growth and large yields with asparagus, beans, beets, cabbage, cauliflower, lettuce, peppers, radishes, spinach and tomatoes. Horse manure is as good a fertilizer because it contains organisms which change nitrates into gas forms which pass off into the air instead of the soil.

When used on the garden, nitrate of soda gives the best results when applied as a dressing. In northern parts it should be used several times during the early part of the growing season, that is, until the soil has come quite warm. Then the nitrogen from organic materials becomes available. The first application should not be made until plants are well established. This may be followed by other applications every ten days or two weeks according to the weather. The rate should not exceed 100 pounds to the acre at each application. A very little nitrate of soda, therefore, is required for a hundred foot row. If applied in large quantities at a time, the plants are not only liable to be injured, but the contained nitrogen would be partly wasted by leaching before it could be utilized by the crops.

When the plants are small, nitrate of soda may be applied by a side-dresser drill, a useful garden implement. But when the plants come larger it is necessary to apply the nitrate by hand. Care should be taken not to sprinkle it on the leaves of the plants if they are damp, as nitrate of soda burns the foliage. As soon as possible after being applied it should be worked into the soil.

While dried blood is more easily applied than nitrate of soda, its contained nitrogen is not so readily available. If heavy applications of a nitrogenous fertilizer are required, dried blood is the best form of nitrogen to apply. It is not so likely to injure the plants as nitrate, and the nitrates are utilized by growing crops for a much longer period.

Sulphate of ammonia is not so generally recommended as the other two nitrogenous fertilizers. In fact, until more is known about its effects gardeners should use it with caution. Its contained nitrogen is not so easily transformed into nitrates for the use of crops unless some calcium carbonate is applied with it, so the soil is thoroughly limed.

Kensington, Md. JAMES B. MORMON

Tsuga caroliniana

From the high Carolina Mountains, the most beautiful Hemlock known.

Rhododendron carolinianum,

the new, clear pink species.

Rare American Plants and Specimen Evergreens. Rock, Water and Wild Gardens designed and executed.

HARLAN P. KELSEY, Landscape Architect,
Salem, Massachusetts.

Owner,

Highlands Nursery in North Carolina, Boxford Nursery in Massachusetts. Catalogs.

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Your lawns and gardens radiate your personality. Plant beautiful ornamental trees, shrubs and plants to add a picturesque touch; plant for fruiting. Green's sure-bearing, true-to-name fruit trees, grape vines, berries, etc., all of which you can buy from us at

Half Agents' Prices

We sell direct to you. There is no Nursery Agent to pay. Green's stock is backed by forty years of successful growing and direct selling.

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MOON'S NURSERIES

What a Home is Like

is very much in evidence before ever you cross the threshold. Indifference to the appearance of the lawn and grounds is an indifference to public opinion.

JUST as quickly as possible after completing your building, you want your property to have that finished effect which of necessity depends so vitally on the planting for its results. MOONS' know how. Perhaps the secret lies in our methods of frequent transplanting. Possibly in the soil in which the stock is grown. Whatever the reason, MOONS' plantings are so generally satisfactory that those we have served continue to send us customers.

It pays to buy MOONS' stock. It pays, because the plants are especially selected and freshly dug and packed for each order; have been reared with a care for their vigor of growth and shapeliness of form that make attractive lawn plantings with a permanent accumulative value and enjoyment.

Perhaps one of the reasons why MOONS' plantings are so unparalleled is because we personally are interested in having our customers make selections best adapted to their place, climate and purpose.

Our informative Catalogue No. a-3, with its many illustrations, should be your first guide. Then let our Letter-Aid Bureau help.

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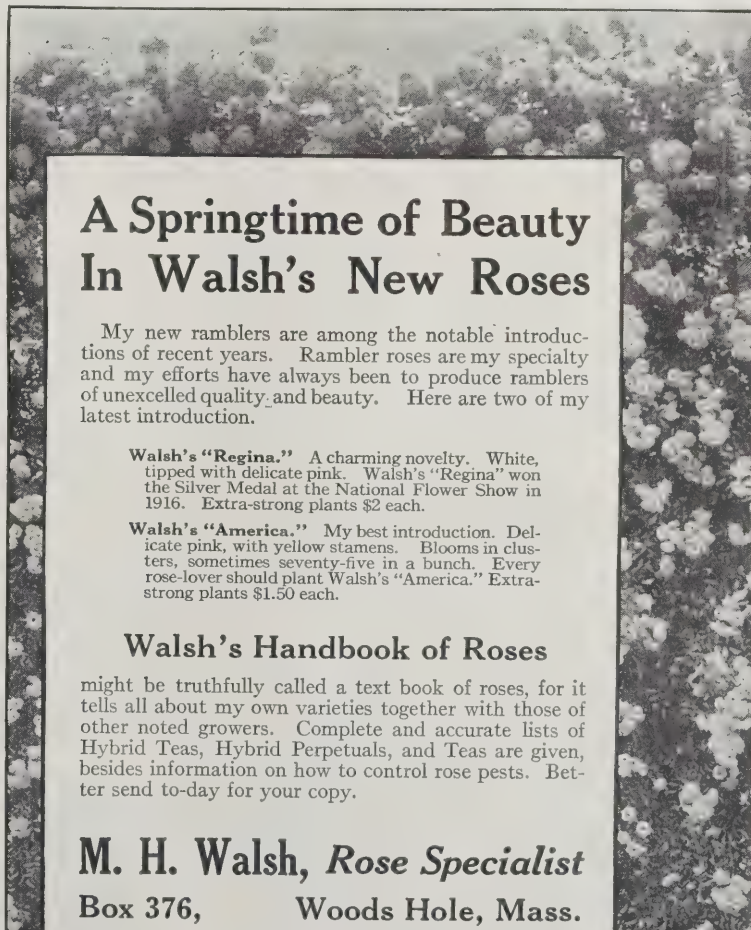
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A Springtime of Beauty In Walsh's New Roses

My new ramblers are among the notable introductions of recent years. Rambler roses are my specialty and my efforts have always been to produce ramblers of unexcelled quality and beauty. Here are two of my latest introduction.

Walsh's "Regina." A charming novelty. White, tipped with delicate pink. Walsh's "Regina" won the Silver Medal at the National Flower Show in 1916. Extra-strong plants \$2 each.

Walsh's "America." My best introduction. Delicate pink, with yellow stamens. Blooms in clusters, sometimes seventy-five in a bunch. Every rose-lover should plant Walsh's "America." Extra-strong plants \$1.50 each.

Walsh's Handbook of Roses

might be truthfully called a text book of roses, for it tells all about my own varieties together with those of other noted growers. Complete and accurate lists of Hybrid Teas, Hybrid Perpetuals, and Teas are given, besides information on how to control rose pests. Better send to-day for your copy.

M. H. Walsh, Rose Specialist
Box 376, Woods Hole, Mass.



FARR'S Hardy Plant Specialties

Farr's Hardy Plant Specialties

Edition for 1917-18. I have tried to make this edition more complete and helpful than any of its predecessors. In its completeness it will be a text book that no reader of The Garden Magazine will wish to be without.

SPECIAL FEATURES OF THIS EDITION

Irises. In the Germanica section there will be added some notable new introductions from Europe in addition to my splendid Panama-Pacific Gold Medal Collection, which contains many varieties of my own introductions, raised here at Wyomissing.

In the Japanese section there will be the first offering of a series of new seedlings of my own hybridizing. These are entirely distinct in color, size and form of flower, from any of the existing varieties.

Peonies. My collection is acknowledged to be the most complete in existence. This year I shall include a number of fine varieties, which, owing to limited stock, I have not been able to offer heretofore.

Tree Peonies. Of more than ordinary interest will be the chapter on tree peonies and their cultivation. The purchase of the noted

collection of tree peonies owned by Brochet & Sons (successors to Paillet Nurseries), Chantenay, France, has given me a wonderful collection which is now established in my nurseries. These, together with the unique assortment of the beautiful Japanese varieties, gives me a collection of over 300 varieties, all of which are *established on their own roots*—this is important, as many past failures with tree peonies are due to grafting them on the roots of the wild peony.

Lilacs. The collection of Lemoine's new French Lilacs has been enriched by the addition of several of his later introductions.

Roses. A carefully selected list of the very best classes for outdoor planting.

Evergreens. A choice collection of the rare evergreen trees and shrubs for lawn planting, including many dwarf forms for rockeries.

To insure receiving a copy of this edition you should send me your name and address now. As soon as the work is completed the book will be mailed to you without cost.

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Planning the Garden. So many have asked me to help them plan their gardens that I have found it necessary to form a special department in charge of a skillful landscape designer and plantsman. I will be glad to assist you in any way desired by offhand suggestions or by the preparation of detailed plans for which a charge will be made.

A WOMAN FLORIST 6 Hardy Everblooming Roses ALL WILL BLOOM THIS SUMMER 25^c

Sent to any address postpaid;
guaranteed to reach you in good growing condition

GEM ROSE COLLECTION

Bessie Brown, Creamy White
Rhea Reid, Rosy Crimson
Cluthilde Souper, White and Pink
Snowflake, Pure White
Radiance, Brilliant Carmine
Pres. Taft, Brightest Pink

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Witch Hazels in the Arnold Arboretum

THE winter season deprives us of a lot of pleasure out-of-doors in its lack of flowering trees and shrubs. The Witch Hazel gives us a tide-over of flowers usually from September to March and should be more generally grown around winter residences.

Most of us are familiar with the common Hamamelis virginiana of our eastern woods, a very common shrub from Nova Scotia to Florida, generally found on the borders of woods or by the sides of rocky streets.



The yellowish flowers of the native Witch Hazel appear with the old fruit make a pretty winter picture

Its flowers appear in late autumn, as the fruit of the previous year is ripening and often the leaves change color. The petals are strap-shaped, of a bright yellow color with a calyx dull brownish yellow inside. This plant is usually raised from seed.

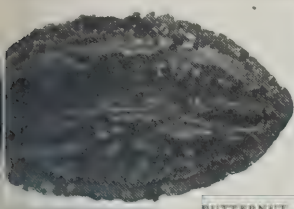
Another little known American species is the spring flowering Witch Hazel, Hamamelis vernalis, a low-growing shrub seldom more than six feet high and differing from the former in spreading by means of stolons which eventually form a thicket. The flowers are not so large nor of such a bright yellow as those of Hamamelis virginiana, but the inside of the calyx is a dark red color. The leaves also differ by being more of a dull green. Its chief attraction comes by flowering usually during January or February and seems to have no objection to any degree of frost experienced here. It may be propagated by grafting Hamamelis virginiana, or by division.

Before H. vernalis has finished flowering the beautiful China Silky Witch Hazel, Hamamelis mollis, comes out. This is a native of Central China and bears large leaves densely tomentose below and holds most of these until after the flowers have opened. It forms a bush or small tree, and bears large flowers of a bright golden yellow, with petals $\frac{3}{4}$ of an inch long, broader than any of those in other varieties and less twisted, and the calyx is of a purplish red color inside. A very desirable plant to grow and easily grafted on the common Witch Hazel.

For a further selection of these shrubs have the Japanese Witch Hazel, Hamamelis japonica, and its variety arborea, both of the same yellow colored flowers contrasted effectively with the rich red calyx. With Hamamelis japonica is more erect growing than var. arborea; both flower in February.

Jamaica Plains.

A. H. JUD



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Profits, Foods, Beauty, Pleasure

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Above all, they're **highly profitable.** A reasonable number of these trees will not only supply your own household requirements in nut foods—now a wide spread, popular and healthful usage—they will go a long way toward maintaining the up-keep of your grounds.

Nut trees from the Glenwood Nurseries are bred under strenuous climatic conditions, and come to you superabundantly fortified with rugged vigor, toughness of fibre, and hardy health and strength that assures their successful growth and bearing in the cold climate of the East and North.

There is **always** an eager market for all the nuts you can spare from your crop at attractive prices. Our **English Walnuts** and **Pecans** (Paper Shell) are bred for cold climates. **Hickories, Filberts, Black Walnuts** and **Butternuts** not only produce ample crops of sweet, tender and nutritious nut meats but make exceedingly decorative landscape trees.

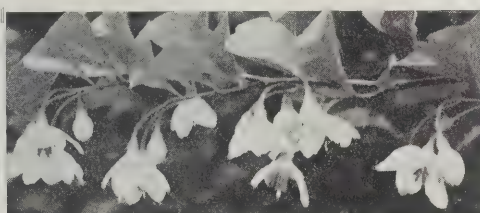
We are Landscape Artists, and we are being constantly called upon to supply trees of these varieties for the most exclusive estates. Let us advise you, according to the size and requirements of your estate; the conditions of soil, drainage and elevation.

We will cheerfully send you our 1917 catalogue on receipt of your name and address. It explains Nut culture, the care and culture of Fruits, Roses, Shrubs, Evergreens, etc., GRATIS.

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Rare and Beautiful Plants

Japanese Bell-Flower Tree

(*Enkianthus campanulatus*)

A very distinctive shrub with handsome yellow and red, pendulous flowers. The brilliant autumn coloring of the leaves is especially attractive. Prof. Sargent says, "By Japanese Botanists it is spoken of as one of the most beautiful flowering trees of Japan."

2-3 ft. high \$5.00 each \$4.00 per 10

Japanese Flowering Dogwood

(*Cornus Kousa*)

Similar to our native White Flowering Dogwood. Flowers very showy, appearing after the leaves in June and contrasting well with the bright green foliage.

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3-4 " " 1.00 " 7.50 " "

Early Flowering Hydrangea

(*Hydrangea paniculata praecox*)

An early flowering form of the Panicle Hydrangea, flowering in July when flowers are scarce, four to six weeks earlier than *Hydrangea paniculata grandiflora*.

1½ ft. high \$.30 each \$2.50 per 10

Japanese Storax

(*Styrax Japonica*)

A most graceful shrub with pendulous clusters of white, bell-shaped blossoms are charmingly distinctive.

2 ft. high \$.50 each \$4.00 per 10

Soulang's Magnolia

(*Magnolia Soulangiana*)

Blooming before the leaves appear, it presents a wonderful show of pinkish-white blooms. Specimen bushes, four years older than usual with big balls of roots, and probably fifty flower buds.

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Photinia Villosa

A Chinese representative of the Shad-bush. Flowering abundantly and followed by remarkably red fruits, attractive to birds in winter.

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1,000 lbs. or more " 3¼ " "

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10 lbs. enough for 400 square feet \$1.10
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1,000 lbs. or more " 4¼ " "

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The constant delights of hardy gardens may be yours for very little money. Spend just a little while each day with a vigorous lot of seedling plants and your desires for hardy plants will be easily fulfilled. We gather each year, partly for our own use, the freshest and choicest home-saved seeds of many hundred different kinds. These we will share with readers of The Garden Magazine.

You Can Have a \$100 Garden for \$2—Postpaid

We will mail one packet of seeds of each of 25 distinct and beautiful hardy perennial plants, all easily grown from seeds, for \$2 or 12 packets distinct kinds for \$1. Among them you will find many popular favorites as well as some rare new kinds. These seeds, with reasonable care, should produce over one hundred dollars' worth of hardy plants within a year. Should you want specific varieties name them or write for list of kinds available.

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is a 64 page portfolio of unusual character. Besides serving as an introduction to over a thousand distinct hardy plants, it describes them in easily understood language and gives their common names. It will prove a decided acquisition to any horticultural library. Serves the beginner as well as advanced hobbyist alike. The price is ten cents which amount may be deducted when ordering seeds or plants. Those who prefer to start hardy gardens with plants will find ours to measure up to the highest standards known, at reasonable prices.

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COMING EVENTS CLUB & SOCIETY NEWS



Meetings, etc. in March

(Following dates are meetings unless otherwise specified)

1. Marshfield, Mass., Garden Club.
2. Pasadena, Cal., Horticultural Society.
3. Massachusetts Horticultural Society, Boston, Mass. Lecture: Strawberry Culture.
6. Garden Club of Myers Park, Charlotte, N. C. Subject: Insects and Plant Diseases.
- Lake Geneva, Wis., Gardeners' & Foremen's Association.
7. Short Hills, N. J., Garden Club.
9. Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
- Connecticut Horticultural Society, Hartford, Conn.
10. Massachusetts Horticultural Society, Boston, Mass. Lecture: Cranberry Culture.
- Dobbs Ferry, N. Y., Horticultural Society.
12. New York Florists' Club, New York City.
- Park Garden Club, Flushing, L. I.
- Rochester, N. Y., Florists' Association.
- New Rochelle, N. Y., Garden Club.
14. Nassau Co. Horticultural Society, Glen Cove, N. Y.
- Short Hills, N. J., Garden Club.
- Lenox, Mass., Horticultural Society.
15. Marshfield, Mass., Garden Club.
- 15-18. St. Louis, Mo., Spring Flower Show Association.
- St. Louis Spring Flower Show.
- 15-22. Horticultural Society of New York and New York Florists' Club, New York City.
- International Spring Flower Show.
16. Pasadena, Cal., Horticultural Society.
17. Massachusetts Horticultural Society, Boston, Mass. Lecture: Orcharding in the West and South.
19. New Bedford, Mass., Horticultural Society.
20. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Myers Park, Charlotte, N. C. Subject: The Vegetable Garden.
21. Short Hills, N. J., Garden Club.
- Rhode Island Horticultural Society, Providence, R. I.
- Tarrytown, N. Y., Horticultural Society.
- 21-25. Massachusetts Horticultural Society, Boston, Mass. Spring Exhibition.
23. Connecticut Horticultural Society, Hartford, Conn.
24. Dobbs Ferry, N. Y., Horticultural Society.
26. Park Garden Club, Flushing, L. I. Lecture: Art in the Cottage Door Yard Garden.
28. Short Hills, N. J., Garden Club.
31. Massachusetts Horticultural Society, Boston, Mass. Lecture: Alpine Plants.

New Plants Registered

BY THE American Rose Society—*Mrs. Chas. Gersdorff*, a new climbing hybrid tea offered by Mr. Chas E. F. Gersdorff, Washington, D. C. The plant is of strong climbing habit. Strong thorns not too thickly set. Flowers in clusters of two to four buds long. Color Killarney pink, shading to blush; tea fragrance.—B. HAMMOND, Secy.

By the American Gladiolus Society. The variety *Prosperity* by Arthur Cowee, Berlin, N. Y. The following is a description: The plant is tall, most striking, and attractive. Its massive proportions, broad, heavy foliage of a rich green, erect, and vigorous habit of growth, give evidence of a strong constitution. Flowers are large. Color is a bright rose shading to madderlake, except the last segment, which has a chamois-yellow base. Anthers violet, styles white. Unsurpassed as a keeper.—A. C. BEAL, Chairman.

The New York Annual Flower Show

THE International Spring Flower Show is now firmly established as an annual event in New York. It takes place this year in the Grand Central Palace, March 15th to 22nd, and as in previous years, is under the direction of the Horticultural Society of New York and the New York Florists' Club, which two organizations are representative of the wider, general interests of the city and trade growers. As in former years, there will be the special attractions on the different days of the Exhibition—one for Roses;

one for Carnations; one for Sweet Peas; another for table decorations, etc.

This arrangement insures a continuous interest, and visitors on different days will find different attractions in perfection. The principal exhibits will be drawn from the leading private establishments around New York, including the collections of the New York Botanical Garden and of the City Park Department (Central and Prospect Parks). Noteworthy contributions are also coming from some of the larger private establishments of Philadelphia. The Garden Clubs are contributing actively to the success of the event. Tropaeolums are offered by Mrs. J. Willis Martin, President of the Garden Club of America, and by Mr. Charles F. Hoffman, President of the International Garden Club of New York.

The volume of exhibits bids fair to outstrip any previous event; the space taken up by the trade section is larger than has ever been seen for any previous flower show held in America.

Rose gardens and rockeries built on the floor of the exhibition hall, and which have formed such attractive features in previous shows, will be represented again on a more extensive scale.

An effort is being made to arrange plant exhibits in naturalistic groups and to reproduce, so far as possible, the appearance of tropical plants growing under natural conditions. The interest in the Rose and other special feature gardens will be augmented this year by a new scale of points for judging: 40 points to be considered for artistic design, general effect and accessories; 20 points for variety; 20 points for cultural perfection; 20 points for practicability.

The Tea Garden feature, under the management of the ladies of the American Rose Society, will be conducted on much the same lines as last year; the receipts of that feature being devoted directly to the objects of the Red Cross.

The representative committee of management is under the direction of Mr. A. Havemeyer, President of the Horticultural Society of New York as Chairman, with John Young, Secretary of the New York Florists' Club, 54 West 28th St., from whom scheduled and other detailed information may be obtained.

National Rose and Peony Gardens

FLOWER lovers are being asked by the Office of Horticultural Investigation of the U. S. Department of Agriculture to contribute to the test gardens at Arlington, Virginia, just across the Potomac from Washington, Roses and Peonies of varieties not now represented in the Government collections. It is the hope of the Department to assemble at the Arlington gardens as nearly as possible complete collections of varieties of the two flowers. These collections will be used for comparison and study of conditions under which they thrive best, and also as a basis for plant breeding work. At the present time approximately 700 varieties of Rose and 400 varieties of Peony are growing in the Arlington gardens. They represent about one-half the varieties of each of the flowers believed to exist in the United States.

The Department of Agriculture is creating

(Continued on page 126)

The "Old Glory" Gladiolus Garden

A selection from choice named varieties and color sections. The bulbs are grown in our fields, selected from our regular stock, and we are sure the "Old Glory" will give you a wonderfully beautiful display this summer.

**One Hundred Select Bulbs
Delivered to Your Door, \$2**

All the new varieties of Gladioli; Dahlias, Gloxinias, Bedding Plants, Roses, Shrubs, Fruit and Shade Trees, Garden and Flower Seeds are presented in our

1917 Seed and Plant Annual

a book of nearly 200 pages. It points the safe way to a garden that will give the greatest pleasure and profit to the planter. Send your name and address for a copy.

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Splendid Specials

Danver's Yellow Globe Onions

Uniform—heaviest cropper and best keeper. True Buxton type; early, very thick bulb; flat or slightly convex bottom; full oval top; small neck; rich, brownish-yellow skin.

Dahlias

A whole host of new varieties, an extraordinary array of colors and a delight to every lover of beautiful flowers. See our Annual for complete descriptions.

Crosby's Improved Egyptian Beets

Early variety has small top, excellent form and small tap root. Great improvement over old variety of Egyptian beet. True to shape and color. Improved by the late Josiah Crosby of Arlington, Mass.

Begonias

Single-flowering and double-flowering. Also single-fringed Begonias—beautiful giant blooms with elegantly fringed edges. Rather new—limited quantity.

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There are wonderful results to be secured both in garden effects and for household cut flowers with Gladioli, Cannas, Dahlias, Montbretias, etc., and at such a small outlay of time and money! Just try an assortment of our imported-to-order bulbs this year. By planting in proper combinations and intervals you can have an abundance of beautiful flowers steadily from spring till frost, and with practically no trouble at all.

Our Plan Saves You Half

This is our plan. You tell us what bulbs you wish. We order them for you directly from the growers in Holland, where the best bulbs come from. Long experience and frequent visits to Holland and personal acquaintance with the growers enable us to buy each kind from the best specialist in that variety, and as your bulbs are packed by the grower and then forwarded to you as soon as they reach this country, you get much better bulbs and at much less than they would cost you if passed through the usual middlemen. Thousands of customers buy their bulbs through us every year and they can tell you. You need not pay for your bulbs until after delivery, nor take them if not satisfactory. (References required from new customers.) But remember—

You Must Order Now— Not Later Than April 1st

Our prices and the quality of bulbs secured depend upon buying direct from the growers for April and May delivery. These are just a few of the prices our plan secures you:

	Dozen	100
Gladioli America, 1st sized bulbs	\$.25	\$1.40
Gladioli America, 2nd sized bulbs	.18	1.00
Gladioli XXX Mixture, finest offered	.30	2.00
Choicest Named Dahlias	1.00	6.00
Choicest Large Flowered Cannas	.85	5.50

For prices on other items and on smaller quantities, send to-day for our Import Price List. It is Free, write for it now.

Seeds We have a limited quantity of specially selected, pedigreed seeds, representing choice varieties of everything grown in Mr. Elliott's private garden, that this year, for the first time, are offered for sale, and at no advance in prices. These are highest grade seeds produced. Write for list and prices of flower and vegetable seeds at once.

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are fully described in our new garden bulletin No. 42 A—Here again you will find new improved methods which make the King Frames very productive—When you write please be sure to tell us which book you want.

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(Concluded from p. 124)

the test gardens in coöperation with the American Rose Society and the American Peony Society. The Rose garden was begun in 1915. The Peony collection was started last fall. The majority of the plants have been contributed by nurserymen and florists, though many have been given by amateurs.

Persons who believe they have varieties of Rose or Peony not represented in the Arlington gardens and who wish to contribute to the collections should first write to the Office of Horticultural Investigations, Washington, D. C., offering special varieties or requesting a list of the varieties desired.

Wild Flower Preservation

DETROIT has organized its forces to preserve the native flora. The Highland Park Garden Club, the Garden club of Michigan, the Zoological Association, The Florists' club, the Audubon society, the Detroit Institute of Science, the Recreation Commission, the Library Board, the Park Commission, the heads of the Botany departments of the high schools, the Lincoln Highway Association and others are in coöperation to encourage the planting of wild flowers in city parks, suburban recreation gardens and fields and along the edges of golf links.

Detroit and its environs was originally blessed by one of the most complete natural plantings to be found in the States. Within the limits of the city grow the Nymphaea tuberosa and the water Chinquapin, the rare Orchids, the Prairie Rose and the dwarf Late Iris. Almost every oak native to Michigan and a most complete exhibit of native Sunflowers and wild Thorn are found in waste places. It was said that Palmer Park originally included all but ten of our native trees and these have since been supplied.

The Twentieth Century Club at the inspiration of Samuel Alexander, a local botanist, initiated the wild flower movement and created last October its wild flower garden sub-committee.

Of course, for years certain citizens have set aside spaces in their home grounds for native flowers. One leading insurance man told me once that the corner of his garden which gave him most pleasure was the one devoted to wild flowers. Being an ardent fisherman, his journeys through the state brought him in contact with numerous wild plants of the rarer species. Whenever he saw a choice specimen he carefully dug it up and wrapping it in paper brought it home. Of course, there are some of the wildlings that resent such efforts to change their place of residence, and will pine away and die in the home garden. Success, however, with the majority comes with a little experience in the handling.

As an incentive to the Club's sub-committee, before mentioned, is the record of wild flower conservation as displayed in Cleveland. That city began about fifteen years ago to save the wildlings by interesting the school children in the movement. Everywhere flowers were ruthlessly torn up and all forms of vandalism prevailed. In less than ten years a change passed over the community. The leader of the work, Mr. E. W. Hain, says that now not a flower is disturbed, though the population as a whole takes a vast part in city gardening.

Redford, Mich.

U. R. PERRINE.

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Weatherproof Garden Labels
Permanent, neat, not too conspicuous,
will last for years

The holder is made of rust proof iron galvanized and japanned green. The card is of celluloid protected by a cover of mica. Easy to mark. Writing will last indefinitely but may be erased when desired and the label re-marked as often as necessary. Excellent for flower beds, useful for marking positions of perennials, bulbs, etc. Fine for roses, shrubs and peonies in formal gardens. Useful also in marking vegetable rows. 18 inches long.

No. 10, card size 2½ x 1½ inches, 15 cents each
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Shipments by express. Customers paying transportation. At your dealers or from

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No fee for our services

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Roses

**Sturdy and Strong
Rooted**

DON'T be satisfied with one fleeting month of rose bloom joy.

Plant some of my sturdy American budded all-summer bloomers, and be able to go out into your rose garden for months and cut big generous bouquets for your table.

The superior quality of the rose stock which I am offering this year will soon be recognized by all rose lovers. It requires no coddling. Every plant can scoff at rigorous winters.

My rose catalogue describes all the best varieties

Gladioli

TO YOUR mid-summer garden should be added the delightful charm of the stately, yet graceful gladioli. Its range of wondrous colorings is truly a revelation. It is happily adapted to cutting for home decoration. I am offering all the most favored varieties in full sized healthy American grown bulbs. Every bulb is true to name and sure in bloom promise.

Send for my Rose and Gladioli Catalogue as a tryout for quality-convincement, I will send a box of 25 choice, selected bulbs, of named varieties anywhere in the U. S. for \$1.

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Roses and Bulbs

72 Broadway

Paterson, N. J.

Peterson Roses

*Need no blare of trumpets to
proclaim their superiority*

They're advertised by their friends beyond our ability to supply ere the season is over.

Is your order in?

Catalogue on application

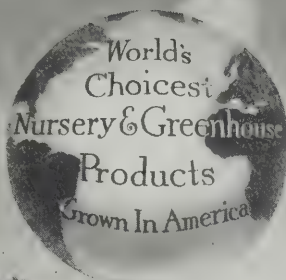
George H. Peterson

Rose and Peony Specialist

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Sunshine and Showers—and the "World's Choicest Nursery and Greenhouse Products Grown in America" assure the Garden Beautiful. In the expert character of our home nurseries, in the extent and variety of our stock, in the supreme excellence of our products—we do our part.

Arrange now for Spring planting.

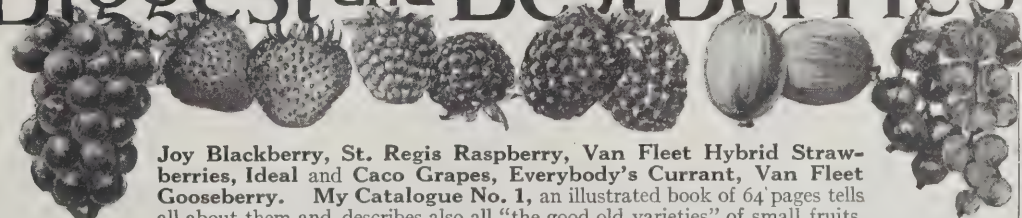
**HOME GROWN ROSES
HARDY OLD-FASHIONED FLOWERS
TREES and SHRUBS
EVERGREENS
HOME GROWN RHODODENDRONS
and 150 other specialties.**

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Joy Blackberry, St. Regis Raspberry, Van Fleet Hybrid Strawberries, Ideal and Caco Grapes, Everybody's Currant, Van Fleet Gooseberry. My Catalogue No. 1, an illustrated book of 64 pages tells all about them and describes also all "the good old varieties" of small fruits. It gives instructions for planting and culture and tells about the **Alida Lovett Rose** that I am giving away. In it are also offered a full line of superior **Roses, Fruit Trees, Ornamental Trees, Shrubs and Vines**, the best **Nut Trees, Hedge Plants and Garden Roots.** Send for it to-day. It is free. Quality unsurpassed—prices low. 39th year—200 acres.

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Box 125

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LITTLE SILVER, N. J.



A Beautiful Planting of New Michaelmas Daisies

such as shown above, growing in our nursery, may grace *your* home-grounds next fall from plants set this spring. We offer a representative collection of the finest imported hybrids especially adapted to American gardens. Being perfectly hardy, they will prove a permanent asset. We especially recommend the following

Four Sorts That Will Delight You

You will find these perennial Asters ideal for cutting. All flower profusely, last well after cutting and are of pleasing colors.

Climax—A beautiful clear blue with golden center. 5 to 6 ft. tall.

Day Dream—Pale lavender flowers borne on 3 to 4 ft. stems.

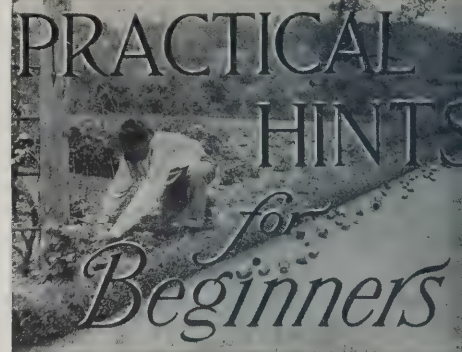
St. Egwin—Soft pink. Two feet tall and one of the best for growing.

Star Shower—Elegant, creamy white on stems 4 feet long. A jewel!

Price, any of above, 25 cents each, \$2.00 for 10

A Catalogue of Plant Treasures is ready to further acquaint you with all we grow at Mt. Desert. Favored by a climate ideal for the growing of hardy plants, we specialize in those which, because of their meritorious character, are far ahead of the rest. You will find our catalogue as delightfully different as the quality of our plants is unique. We invite your call for the book or plants or both.

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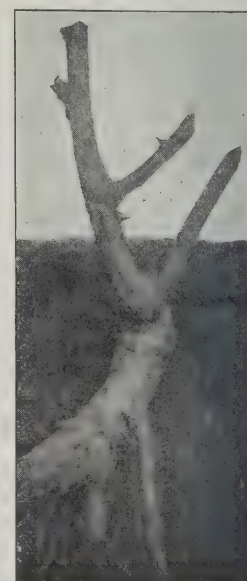


Making the Rose Garden

WHEN the frost is really out of the ground it is time to think about the planting of the Roses. To any one but a gardener a bundle of dormant Roses looks extremely unpromising—just a mass of brown branches with a few straggling roots. Yet, with proper treatment, these sleeping plants may be induced to wake up and display a wealth of flower and foliage in a few short months. Many amateur growers find the advice of the experts in the matter of cutting decidedly confusing; indeed the novice is often tempted to abandon in despair all efforts to master the intricacies of pruning. It may be of interest then to outline a few simple rules which are of wide application:

Cut away all dead wood. Whatever kind the Rose may be, clear out all the obvious weak shoots, leaving only the strong twigs. The manner of dealing with these latter depends upon the habit of the Rose. Weak growing sorts must be pruned severely, those of moderate growth less strongly; the very robust kinds require much less cutting. With climbing Roses it is all sufficient just to take away a foot or so of the tips of the shoots. When buying your Roses the dealer will be able to give you some useful hints on the habits of the specimens. It is fairly easy, however, from an examination of the plant, to decide whether it should be classed as a weak, a moderate, or a strong grower. Bushes that have made only a foot or so of slender growth may be classed

weak. Those which have made a growth of two or three feet are moderate, while the kinds which shoot out from foot to six feet are of exceptionally robust habit. In all cases make your cut down to a strong bud pointing outward from the centre, and then proceed on the following lines: according to the kind of Rose. Weak growing kinds must be cut back to from one to three buds near to the base. In the case of a Rose of moderately strong growth the shoot might be reduced to about a third of its length, leaving from four to five buds. When



Rose bush cut back ready for the year's work. Note depth of graft below soil

(Continued on page 130)

DE LUE'S GOLDEN GIANT SWEET CORN

The most important horticultural acquisition of recent years. Awarded the only Silver Medal ever given by the Massachusetts Horticultural Society for novelty and excellence in Sweet Corn.

DE LUE'S GOLDEN GIANT is the result of eleven years' selection by Dr. Frederick S. De Lue of Boston, Mass., from the product of "Howling Mob" crossed with "Golden Bantam."

With its 12 to 16-rowed ears it gives nearly four times the yield per acre that the Golden Bantam does with its smaller 8-rowed ears. The stalks are short and frequently produce two ears each.

Its orange golden color is richer; it is more delicious in flavor and is equally early.

To introduce DE LUE'S GOLDEN GIANT we offer a limited quantity in packets containing 25 kernels each at 25 cents the packet. Not more than 4 packets to any one customer. Postpaid anywhere in the United States and possessions.

Our 170-page Annual Catalogue and Gardeners' Guide, 450 illustrations, several colored plates and cultural directions, will be mailed on application.

JOSEPH BRECK & SONS

New England's Leading Seed Store for Nearly 100 Years

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DEMING Water-Supply SYSTEMS

insure dependable, ever ready protection from fire; bring steady, high pressure water supply *anywhere* as conveniently and as surely as a city waterworks.

The Complete Systems

are built to last—to perform their daily duties without expert supervision or mechanical attention.

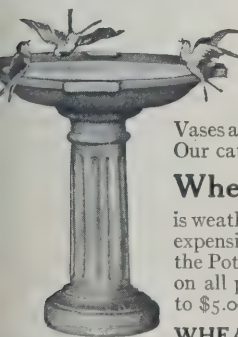
A Deming installation marks a perfect home.

Information gladly furnished—simply write for manual of installationsuggestions or let us plan to meet your specific needs.

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Plans for Your Garden



should include WHEATLEY GARDEN POTTERY, Bird Baths, Shapely

Vases and Pots and Benches. Our catalogue on request.

Wheatley Pottery

is weatherproof, and very inexpensive. Order direct from the Pottery. We pay freight on all purchases amounting to \$5.00 or over. (U. S.)

WHEATLEY POTTERY

2431 Reading Road Cincinnati
Established 1879 Dealers attention

New Everblooming Roses for Your Garden

"Grown in New England" has a special meaning—hardy, vigorous, with vitality to stand everything but the grossest abuse. Cromwell Gardens Roses are "grown in New England"—

Madame E. Colette Martinet. Deep golden yellow. One of the finest yellow garden roses in existence. A glorious cut flower. Strong, 2-year plants from pots, \$1.50 each, \$15 per dozen.

Red Radiance. No other red rose compares with this. Strong grower, large flowers on long stems. Strong 2-year plants from pots, \$1.50 each, \$15 per dozen.

Ophelia. Salmon pink, shaded rose; large flowers, long stems. Strong, 2-year plants from pots, 75 cts. each, \$7.50 per dozen.

Crimson Champion. Scarlet-crimson, overlaid with velvety crimson. Flowers large. One of the best garden roses ever sent out. Strong, 2-year plants from pots, \$1.50 each, \$15 per dozen.

Imogene. One of the most prolific roses—almost never out of bloom. Somewhat dwarf in growth, every branch carrying one or more large flowers. Color, orange-yellow varying to light yellow. Strong, 2-year plants from pots, \$1.50 each, \$15 per dozen.

Gorgeous. Deep orange-yellow flushed with copper. An exhibition rose of the first magnitude. Strong, 2-year plants from pots, \$1.00 each, \$10 per dozen.

Old Gold. Not entirely new, but a real acquisition to those who appreciate the dainty characteristics of the single or semi-double rose. Color, reddish-orange, with coppery red and apricot shadings. A lovely thing when cut in the bud stage. Always in flower and a vigorous, healthy grower. Strong, 2-year plants from pots, 75 cts. each, \$7.50 per dozen.

Panama. A seedling from Frau Karl Druschki and a splendid rose for the garden. Exceptionally free. Color, delicate flesh with lighter shadings. Strong, 2-year plants from pots, 75 cts. each, \$7.50 per dozen.

The above varieties are offered for delivery in May or later

Cromwell Gardens Handbook of Roses, Shrubs, Trees and Greenhouse Plants

new edition, will be of great help to the gardener, amateur or professional. Send to-day for a copy. If you want to know what we know about Roses, ask us.

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Ophelia—A Wonderful Rose

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Largest importers and growers of ORCHIDS in the United States

Send twenty-five cents for catalogue. This amount will be refunded on your first order.

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Orchid Growers and Importers



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My hardy Pennsylvania Grown Budded and Grafted trees are the best for eastern and northern planting. Handsome catalogue and

cultural guide free.

J. F. JONES, The Nut Tree Specialist
LANCASTER Box G PENNSYLVANIA

The Readers' Service will give you information about Gardening

Bartlett Pruning Tools



No. 18

are designed on scientific principles, made of the highest grade materials and sold on their merits.

We make a complete line including our jointed TREE TRIMMER, and will be glad to send our catalogue upon request, also our booklet on pruning with first order.

No. 18, Pruning Saw, Price, \$2.10

No. 777, Two Hand Pruner, 26-in. Ash Handles, \$2.40

Your dealer can supply you; if he does not, mail money order to us and we will ship prepaid.

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DETROIT

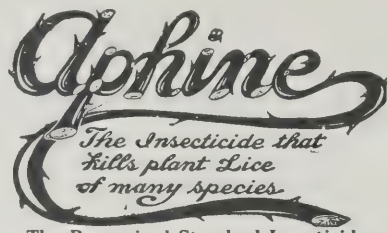
MICHIGAN



No. 777

Insure Your Plants!

It is as important to protect them against the attacks of insects and fungus as it is to properly fertilize them.



for the aphid (or green fly) and all sap sucking insects there is no more efficient remedy. Equally effective on house plants and those grown in the garden—flowers, fruits, or vegetables—and easily applied.

Fungine

is accepted by the best growers as a specific remedy against mildew and blights affecting flowers, fruits or vegetables. Unlike Bordeaux Mixture it does not stain the foliage.

Vermine Makes War On Worms

and other pests working at the roots of plants. By thoroughly soaking the soil, it will destroy the soil vermin so injurious to vegetation.

The above named products are concentrated liquid spraying materials and are applied by diluting with water as per directions on each can.

They are highly endorsed by the foremost professional and commercial growers and are popular among amateurs, being free of the disagreeable features of most insecticides and fungicides, while most effective in their action.

Put up in various sizes to meet the requirements of all growers, whether of an extensive garden or a few plants, APHINE, FUNGINE and VERMINE are listed in the catalogues of, and sold by the representative, seed firms throughout the country.

For further particulars apply to

Aphine Manufacturing Co.

Manufacturers of
Agricultural Chemicals

Madison

New Jersey

(Concluded from page 128)

in a strong growing kind the shoot might be cut down about half.

Almost any soil can be made to support Roses if it is properly prepared. Deep digging is of the first importance and, in a heavy soil, the ground might be trenched to the depth of three feet with advantage. At the same time, it is a good plan to put in some good stable manure. In a light soil the quantity should be greater than that which is used in a heavy soil. If it is possible to work in a layer of broken bricks, or stones, under the prepared soil, so much the better, seeing that Roses dislike anything in the way of standing water.

The opening in the soil for each plant, whether it be a bush or a standard, must be wide enough to take the roots when they are spread right out. It should also be deep enough to permit of the uppermost roots being about four inches below the surface of the soil. It pays to take a little time spreading the roots out; if these are all bunched up



Rose bush, with previous year's growth, ready for cutting back. Compare it with illustration on page 128 showing same bush cut back.

together the Rose will take longer to settle in. The standards or half-standards should have their bare stems supported with a stout stake. This must be pushed into the hole before the earth is filled in. Tread the soil well down over the roots using a gentle but a firm pressure.

In the case of bush Roses there is always a danger of the plant sending out suckers from below the graft. The chance of this will be minimized if the little knob where the graft was made is covered at the time of planting. The point of the graft should be two inches below the surface of the soil. As the suckers appear they must be rigorously cut away, seeing that they will seriously affect the legitimate activities of the plant if permitted to remain, and often they ultimately kill the grafted part. Suckers are, of course, easily distinguished from the ordinary foliage by the small briar-like leaves.

When planting Roses it is an excellent idea to sink a flower pot of moderate size by the bushes. Water and liquid fertilizers can be supplied to the plants by simply filling up the pots. The liquid gradually filters away into the soil through the hole in the bottom of the pot.

S. LEONARD BASTIN.

If a problem grows in your garden write to the Readers' Service for assistance

Hardy Chrysanthemums

The most satisfactory of
our late-blooming plants

Even when the first snow covers the foliage you will find some flowers—but in the early fall's mild days you can cut freely from these generous bloomers.

A Half-dozen Plants to
Start Your Collection

Doris, Pompon. Red button flowers. Midseason.
Garza, Anemone-flowered. White. Superb; late.
Golden Climax, Pompon. Bright golden yellow.
Golden Mensa, Single. Yellow. Large. Midseason.
Lilla, Pompon. Deep Red. Midseason.
Western Beauty, Pompon. Deep Rose-pink.

Strong Pot-grown Plants
one of each variety, 75 cents
Two plants of each, for \$1.25

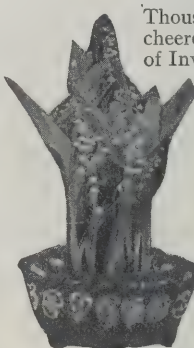
Baur's Plant Catalogue

will be sent to every purchaser of this collection—and to others who ask for it. It offers some special attractions in perennials, roses, shrubs. Write for it to-day.

Baur FloralCo

15 East Ninth St., Dept. A ERIE, PENNA.

Easter Sunday Falls on April 8th



Thousands of homes have been cheered, the weary days of thousands of Invalids and Shut-Ins have been brightened by watching the wonderful budding and blooming of our

Magic Lily of Valley

which flowers in 15-18 days from time of planting in our SPECIALLY prepared MOSSFIBER. Pure white, deliciously fragrant, the lovely bells ring out a JOYOUS EASTER GREETING to your friends.

We send POSTPAID, with fiber to plant and directions how to grow successfully:

6 pips. ... \$0.50	20 pips. ... \$1.25
12 pips. 85	50 pips. ... 3.00

Owing to War, Stock Limited—Price Advanced

Our SPRING 1917 Gardenbook, full of GOOD things, is at your command. Send for it.

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CATALOGUE AND CULTURAL GUIDE FOR 1917

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Achievement (Collarette), maroon, white collar	Regular Price \$1.00
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J. M. Goodrich (Decorative) salmon,	
Maude Adams (Show), pink and white	
Mina Burgle (Decorative), scarlet	

Collection for \$3, prepaid. I highly recommend the

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Irises, Hardy Plants, Lilies and Japanese Garden Specialties

Send for our new 1917-18 Catalogue
Over 500 fine varieties of Irises

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YOU who love trees for their own beauty or value them for the charm they lend to roadside and lawn, must have often wished deeply for a more friendly knowledge of how to choose and group them best, how to improve the outlook from your windows or make more attractive the approaching vistas of home.

This, then, is to say that at last a book has been written which tells just what you want to know about trees. It is the new catalogue of the well-known ornamental trees and shrubs grown at Andorra Nurseries.

"Suggestions for Effective Planting" tells what trees are best adapted by nature for each garden and landscape, what shrubs and trees most effectively group together.

And all this is so beautifully illustrated and conveniently arranged that it is as interesting to read as your favorite magazine. It is not the usual mechanical, deadly dull nursery list. To read it is like going around your grounds with an old, experienced gardener and discussing in a friendly way what the place needs; what evergreens to screen the foundation, what will look best along the driveway or against the ell of the house.

This book is free for the asking. We have one all ready to address with your name. Send your request to Box 100.

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Wm. Warner Harper, Proprietor

Chestnut Hill, Philadelphia, Pa.

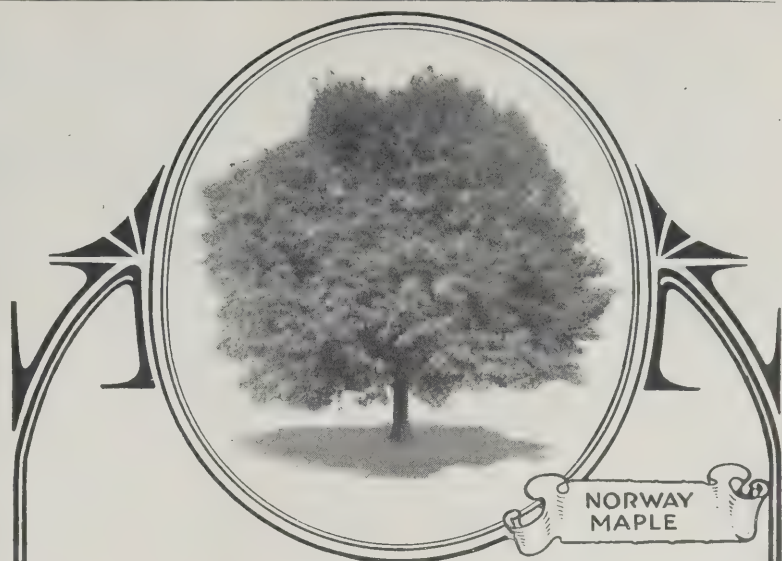
"Into a Modern Fairyland"

Such a trellised arch, rose-grown, leading into a Garden-craft Garden is literally a gateway into Fairyland. The fine touch of a well-placed arbor, the friendly intimacy of a cozy hooded bench, the crowning glory of a rose temple transform your garden from a beautiful flower plot into the nearest corner of Queen Mab's dominions

Mathews GARDEN CRAFT

is described in a handbook which is something more than a catalogue—rather a treasure-trove of garden suggestions. Its 72 pages are a delight to the lover of outdoor life. It is gladly sent on receipt of eighteen cents in stamps.

THE MATHEWS MFG. CO. Designers
915 Williamson Bldg., Craftsmen
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NORWAY
MAPLE

No Trees Like These For Avenue or Lawn

The superiority of [the Norway Maple and the American Linden, as shade trees, must be conceded. They are not only clean, wholesome trees, beautiful the year round, but they thrive in any soil or any location, even in the smoky atmosphere of cities.

The Maple's symmetrical, rather drooping shape, its lovely yellow flowers in Spring, its dense dark green foliage and its brilliant coloring in late Autumn combine to give it an all-season elegance, well suited to refined home surroundings.

The Linden is of rapid growth, forming a broad, round open top, making it exceedingly desirable. Its fragrant, creamy-white flowers in July are great favorites of the honey bees.

Our stock of both these trees is probably the largest and finest in America, and we can fill all orders, in any quantity, in uniform sizes. They are straight, healthy trees, grown six feet apart to give ample light and air and nourishment for the fully developed root systems. Every one is big enough to look well *right now*, but not so big as to be extravagantly expensive.

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It describes in detail hundreds of choice, vigorous Trees, Shrubs and Hardy Flowering Plants and tells how to grow them successfully. Mailed *free*.

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LINDEN



BACK in 1825,
when John Quincy
Adams was President, our
Minister to Portugal asked
his friends to send him an
assortment of Thorburn's
Seeds, so he could grow
some vegetables such as he
"used to have at home."

Since 1802, Thorburn's Seeds
have been known for reliability
and results.

The 1917 Catalogue lists a
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with full instructions for plant-
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One of our hand- somet Novelties is New Rudbeckia

A Hardy Dwarf Perennial with double,
semi-double and single flowers,
very desirable for beds and borders.
Beautifully colored yellow and
orange petals, splashed in varying
degrees with darker shades of red.
Also mahogany and chocolate,
with purple or yellow centres.

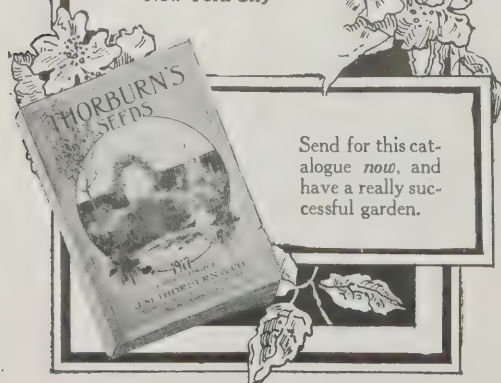
If sown early in March under
glass, will flower the first
year.

Price, 25c the packet

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New York City



Send for this cat-
alogue now, and
have a really suc-
cessful garden.



Seed-growing—Evergreen and
Deciduous Planting—Roses

HARDY vegetables can be planted this
month; but it is far more important
to get the ground in good tilth than
to hurry the seed into the ground.
If this was not done in February get about it as
quickly as possible now. Directions for prepar-
ing the soil are given in THE GARDEN MAGA-
ZINE, February, 1915, as are also directions for
making a hotbed. It is not yet too late to
plant Irish potatoes. There are several good
early varieties, the Irish Cobbler, Eureka and
The Beauty. Try a row of each.

Plant in the open ground the Passano and
Eclipse beet; Black Valentine snap beans and
the wrinkled type of garden peas, of which
the Champion of England is a good well tried
variety. Sow seed of Succession cabbage to
follow the Early Jersey Wakefield. Sow in
the open ground or in a cold frame to be trans-
planted later such lettuces as May King, Han-
son, Wonderful, and Romaine or Cos. After
transplanting, force them with applications
of nitrate of soda every two weeks between
the rows, being careful not to put it too near
the plant or too much at one time. Make
successive sowings also of radishes—first the
little round scarlet kind and after that the
long white or Icicle radish.

Transplant from the hotbed into the cold-
frames the early tomatoes, eggplant and
peppers or any perennials for the flower garden
which are large enough. Keep shaded until
they recover from the shock of transplanting.
Water them in the mornings as long as the
days are cool, but later on the late afternoon
is the best time. They should be planted four
inches apart in the frames or set in three inch
pots and sunk into the coldframe. In that
way the plants get no set-back when trans-
planted into the open ground later and can
easily be slipped right from the pot into the
hole which has previously been made ready
for it. For this purpose old tomato cans are
very useful. Melt out the bottoms. Place
them in rows on planks that have been put in
the bottom of a cold frame, the planks to be
the length of width of frame; i. e., six feet.
Fill the cans and all around them with good
earth and in each can set a tomato plant.
Keep well watered and shaded from the hot
sun. When danger of frost is past, about the
fifteenth of May, lift out from frame one plank
at a time and take to the garden plot and the
tomato plant can be slipped right into the hole
by holding the bottomless can above it; and
with earth packed about it, it will keep right
on growing. Small papier mâché pots are
advertised for this purpose in GARDEN MAG-
AZINE and are very desirable as they are set
right into the hole and they soon disintegrate.

Sow in coldframes Prizetaker, Italian and
Spanish Onions to be transplanted later into
the open ground. This month the Silver
Skin and the Norfolk Queen onion will be
ready for table use.

PLANT EVERGREENS NOW

THOSE from the nurserymen come with
a ball of earth about the roots and
wrapped in burlap. Remove the burlap,
(Continued on page 134)

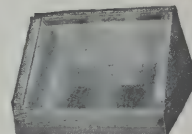
Garden Time Is Right Here!

Are You Ready?

*First thing is to order your outfit of
frost-proof plant growers — Sunlight
Double-Glass Sash for cold frame, hot-
bed, or a small ready-made Sunlight
Greenhouse.

They double your profits!
Immediate shipments.

Start Seed With Suntrapz



Midget seed starters and
plant growers — work in-
doors or outdoors. Two
of them to start the seed will set out both a cold frame and an
ample kitchen garden. They will put you weeks ahead.

Try a few Suntrapz. 50c each. (No glass)
Delivered anywhere east of Rocky Mountains

Get our complete catalogue of Garden Outfits. Free.



**Sunlight Double
Glass Sash Co.**

927 E. Broadway
Louisville Kentucky

Huntington Quality

Combined with *Huntington prices* makes a
combination that is hard to overlook in these
times of war prices.

Gladioli—Loveliness, Mrs. F. Pendleton, Jr.,
Mrs. Watt, Christine M. Kelway, per doz.,
\$1.50; 100, \$8.00.

Pink Perfection, Schwaben, Europa, War,
Peace, per doz., \$1.00; 100, \$5.00.

Lily Lehmann, Panama, Niagara, Empress
of India, Princepine, Willy Wigman, per doz.,
75c.; per 100, \$3.00.

Scarsdale, Attraction, B. Hulot, Faust,
Princes, Fred Wigman, Glory of Holland,
per doz., 50c.; 100, \$1.75.

America, Mrs. F. King, Augusta, Independ-
ence, Mad. Monneret, Halley, Pink and White
mix., Red mix., all colors mix., doz., 35c.; 100,
\$1.25.

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asking. Satisfaction guaranteed.

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Wholesale Grower

Painesville

Ohio

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The Brockton Dahlia Farm is again
to the front with the largest and best
collection of Dahlias in the United
States. All new roots, tagged, and
true to name. It will pay you to give
me a trial order — try me and see.
Catalogue free.

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East Bridgewater

Massachusetts



The Iris

**The Loveliest Border Plant
in the Whole World**

Perfectly hardy. Unexacting in its requirements. The entire plant is decorative with handsome leaves and flowers of elegant form, exquisite texture, wonderful and varied coloring. For a trifling initial cost, one may have a bed or border that will last forever and increase in beauty from year to year.

In our collection we number 165 of the best varieties and species obtainable from America and Europe. It includes bearded and beardless German, Japanese, Siberian, Interregna and Pumila. A selection from these will give a succession of bloom for many months.

For \$1.50 we will send you this beautiful collection. Actual value, \$2.00

Collection A

Tall Bearded Irises

Kochii, Deep claret
Mrs. G. Darwin, Pure white
Violacea Grandiflora, Bright violet
Honorabilis, Mahogany and gold
Queen of Gypsies, Dead leaf and dusky yellow

Write for Our New Catalogue

It describes our Irises, Gladioli, Paeonies, Cannas, Hardy Phlox, Dahlias and many other plants and bulbs. It also lists all kinds of flower, field and garden seeds.

THE WING SEED CO., Box 1426, Mechanicsburg, Ohio

The beauty of this evergreen is preserved by an

**EXCELSIOR
RUST PROOF**

**BED
GUARD**

ET air and moisture reach the roots. Work the ground. This Excelsior Rust Proof Bed Guard prevents trampling and packing by animals. Also protects the lower branches, preserving the symmetry of the tree. Prevents mowers and garden tools getting too close and clipping off the tips of the branches. These guards can be moved out or taken up and laid away for the winter.

Excelsior Bed Guards are made of extra strong, heavy wires, held securely at every intersection by the Wright patented steel clamp. Dip-galvanized after making. This not only prevents rust, but securely solders the lateral to the vertical wires, which means added rigidity and strength. If you would know more about these garden necessities, write for catalog B.

We also make a full line of Excelsior Rust Proof tree guards, fences, trellises, tennis railings, gates, etc.

WRIGHT WIRE COMPANY

Worcester, Mass.



"All plants, of every leaf, that can endure
The winter's frown, if screen'd from his shrew'd bite,
Live there and prosper."—*Cowper.*

LUTTON GREENHOUSES

Transform Winter's Frown to Summer's Smile

In them you can indulge in the most fascinating of all horticultural hobbies—under-glass gardening—with the assurance that you will get big dividends, not only in enjoyment, but in money value as well.

LUTTON Greenhouses are warmly recommended by owners, architects and gardeners for their high architectural standard and practical, efficient design. Let us quote you a few opinions from your locality.

If you are contemplating buying a greenhouse we can show you how to save considerable by buying a smaller house and installing LUTTON COLD FRAMES with it for starting your plants; or, if you already possess a greenhouse, you can greatly increase its growing capacity by using these frames.

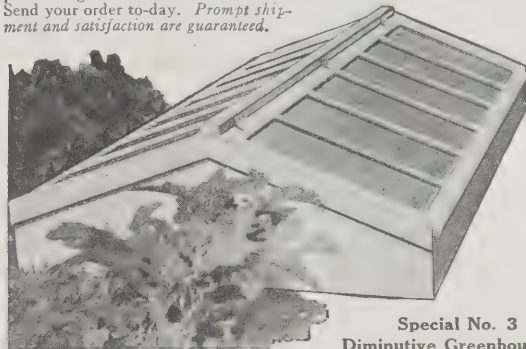
"Spring unlocks the flowers to paint the laughing soil."
But why wait for Spring?

*Seal a March on April's Showers
by planting your flower and vegetable seed at once in*

LUTTON MINIATURE GLASS GARDENS

Your garden will be yielding its bounty weeks ahead of your neighbors. Tomatoes planted in these frames now will be ripe in June, while the green fruit of plants started outdoors will be no larger than a walnut. Twenty or more varieties of vegetables can be raised by the amateur in Lutton Miniature Glass Gardens.

As you can regulate the temperature within LUTTON Miniature Glass Gardens, transplanted stock is healthy and hardened against the sudden changes that ruin seedlings grown in any other manner. Thousands are in successful operation all over the country, and no garden will produce its best results without them. The prices are remarkably low considering present high cost of materials and labor. Send your order to-day. Prompt shipment and satisfaction are guaranteed.



Special No. 3

Diminutive Greenhouse

covers 40 sq. ft. of garden space. High enough to receive fairly tall plants. Six large lights of extra heavy glass to each sash. Hinged at top. All ready to put together in a few minutes. Portable, strongly made, neatly finished. Carefully packed. Price complete, freight prepaid anywhere in U. S. East of Mississippi.

Price Delivered \$23.00



Special No. 2 Improved Hot Bed Frame

covers 21 sq. ft. Over 8 ft. long and wide enough to fit in a 3 ft. space. Sash has 6 large lights of extra heavy glass. Carefully packed; easily set up. Price complete, freight prepaid anywhere in U. S. East of Mississippi. This is an ideal frame for the beginner as well as advanced horticulturist.

Price Delivered \$12.00

Catalogue D covers all types of glass gardens and has valuable information on gardening under glass. Write for a copy to-day.

WM. H. LUTTON CO., Main Office and Factory, Jersey City, N. J.
Show Room, 3rd Floor Grand Central Terminal, N. Y. City
Western Office, 710 Sykes Block Minneapolis, Minn.

*Horticultural Architects and Builders of All Kinds of
Modern Glass Structures*

The Gladiolus

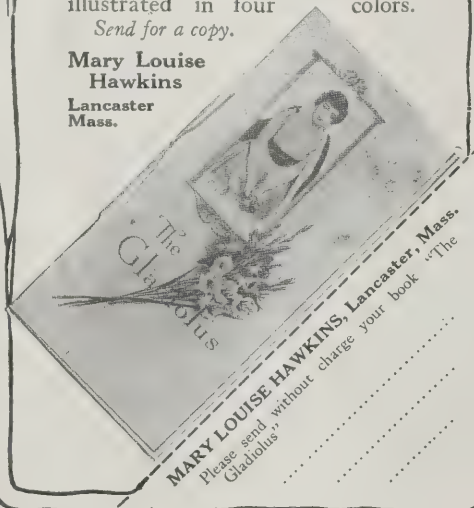
I want to send you my beautiful, illustrated book called "The Gladiolus." It contains a short history of this beautiful flower, tells the best planting location, the kind of soil, when and how to plant, the care and cultivation of the plants while growing, how to water, how to properly cut the flowers, and how to take care of the bulbs; or, in a few words, it contains the result of my experience with Gladiolus covering a number of years.

Gladiolus Bulbs

I have listed some of the most successful varieties with prices. Many of these are offered now for the first time, and are the very best of my prize winning collection. Two very beautiful and popular varieties, *Daisy Rand* and *Mary Fennell* are illustrated in four colors.

Send for a copy.

Mary Louise
Hawkins
Lancaster
Mass.



The Readers' Service gives information about Gardening

VICK'S
GARDEN and FLORAL **GUIDE** FOR 1917

IT'S FREE Several new features. Valuable information about planting. An authority on Vegetable, Flower and Farm Seeds, Plants, Bulbs and Trees. Based on our experience as America's oldest mail-order seed concern, and largest grower of Asters and many other flowers in the world. With this guide, the best ever issued, we will gladly include booklet, Asters in the Home Garden. Both are absolutely free.

Send for your copy today, before you forget
JAMES VICK'S SONS
62 Stone Street, Rochester, N. Y.
The Flower City

WRITE TODAY

(Concluded from page 132)

place the plant in the hole, fill up with water, hold evergreen erect and fill in gradually with good earth putting the bottom soil on top and with this a mixture of bone meal. The next day after the water has thoroughly seeped through, press the foot about the plant on all sides and leave a slight depression so that during the hot dry summer months it can be better watered. If one attempts transplanting evergreens from the woods, care should be taken not to allow the roots to get dry. They should be wrapped in burlap immediately after digging, to protect from wind and sun and the hole should have previously been made ready for the plant, so there should be no unnecessary delay and therefore less chance of the roots drying out. All broken or bruised roots should be carefully cut away before planting. For the first summer evergreens should be kept watered until they become established. See article in March number of GARDEN MAGAZINE, 1916.

THE STONE FRUITS

SET out peach, plum and apricot trees before it is too late; i.e., the early part of March. A very good, well flavored early peach is the Mayflower and there are the old reliable, the Elberta and Early and Late Crawfords. Try a few of the Hale peaches. Plant a new strawberry bed. The St. Louis is well flavored and less acid than many strawberries and good for the home garden but will not ship well. The old strawberry bed should have attention now. See February issue of GARDEN MAGAZINE for directions. Try a few of the new kinds advertised and also a few of the everbearing ones.

Scatter over the asparagus bed a mixed commercial fertilizer and work this in with the manure which was spread on in the fall. Mound up the beds if white asparagus is desired, but leave the beds level if green stalks are preferred.

AMONG THE ROSES

GIVE attention to the rose garden now. The Hybrid Perpetual Roses give better results from severe pruning, cutting them down within a foot and a half of the ground after all old and diseased wood is cut away. The more tender varieties only require the old or diseased wood cut away. The climbers are treated in the same manner. Before the tender leaves make their appearance, spray thoroughly with Bordeaux mixture with an addition of arsenate of lead, a pound and a half to fifty gallons. Winter strength should only be used when the plants are dormant. See directions in March number of GARDEN MAGAZINE, 1916.

Scatter hard wood ashes or soot about the base of the bushes. Both are good fertilizers and the latter an insecticide as well. Do not spade deeply near the bush as it will bruise it and also loosen it from the ground, but as the bushes should be planted two feet apart, trenching could be done between them; i. e. dig two feet deep and put rotten manure at bottom of trench and refill first with the top soil, putting the bottom soil on last and with this soil work in a little bone meal. This work is better done in the fall when there isn't such a rush of work but if one has time it can be done this month. If done in the fall low growing annuals can be sown under the rose bushes and forget-me-nots bloom so early they are most welcome after a colorless winter.

Virginia

J. M. PATTERSON.



Our sure growing evergreens lend a finished touch to any home. For 56 years we have been furnishing choice, hardy evergreens to people all over America. We offer you the choice of the greatest evergreen stock in the world—over 50,000,000 evergreens on hand.

We give expert advice free—furnish suggestions on tree arrangement. Write for Handsomely Illustrated Evergreen Book—trees shown in true-to-life colors—Free! Get the book. Don't risk failure with evergreens of uncertain quality. Get the book and get posted.

D. HILL NURSERY CO.

Evergreen Specialists

BOX 1066

DUNDEE, ILL.



Dorothy Dod's Favorite Flowers

Yielding a Mass of Blooms

FREE

To get our beautiful Spring catalogue to as many lovers of flowers as possible, we will mail you one packet each of **Rainbow Mixed Sweet Peas, Shirley Poppy and Dianthus, Single; Tomato, Bonfire; Lettuce, All-heart;** and our catalogue included, if you will send us your name and address and **TEN cents** in stamps or coin to cover mailing.

The catalogue contains all the Flower and Vegetable novelties for 1917, and much reliable information explaining in detail how to plant. One million packets will be distributed this year. May we add your name to our list?

WM. ELLIOTT & SONS

Est. 1845

36 Vesey Street, New York

Pulverized Sheep Manure

Best for Lawns and Gardens

Nature's Own Plant Food. For all crops. Especially good for lawns, gardens, etc., where quick and certain results are necessary. Used extensively for small fruits, shrubbery, etc., Rich in nitrogen, phosphoric acid and potash; also adds humus.

Sheep's Head Sheep Manure

guaranteed absolutely clean—nothing but sheep manure free from weed seeds, which are killed by heat. Dried and pulverized for easy application 200 lbs. delivered anywhere east of the Missouri River for \$4.00, cash with order. 200 lbs., enough for lawn and garden, delivered for \$4.

Natural Guano Co.

805 River St.
Aurora, Ill.



GLADIOLI

Easy to Grow — Sure to Bloom

Should you perchance have seen these superb varieties with their magnificent spikes growing in your friend's garden last summer then you also must have them for your garden. Their appeal is irresistible.

Plant in fair soil — 5 inches deep — cultivate as you would vegetables and you will get fine bloom. Try the following:

- Schwaben — prim-rose
- Mrs. Frank Pen-
dleton — soft-pink
- War — red
- Panama — rose-pink
- Mrs. F. King —
flame-pink
- Peace — white
- Halley — salmon-
pink
- Lily Lehman —
white and pink
- Baron Hulot — blue
- Niagara — buff

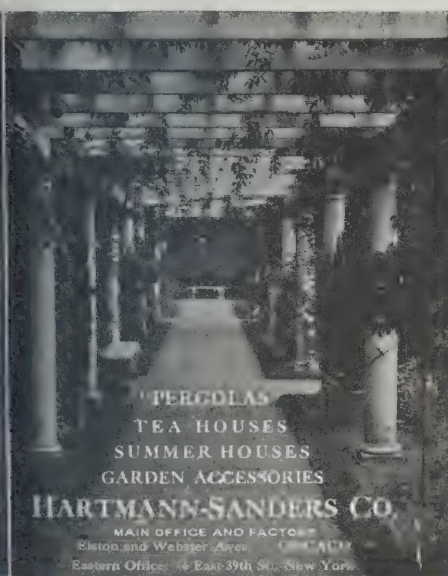
One each of above 10
postpaid for \$1
6 collections for \$5

A. B. Covert
1625 West Second St.
Dayton Ohio

GLADIOLI, DAHLIAS, ROSES and PEONIES

grow the best varieties true to name. The quality of
y stock is as good as the best. Send me a trial
der and be convinced. Catalogue now ready.

A. HALLAUER Ontario, N. Y.



When writing enclose 10c in stamps and ask for
Catalogue H-29



We Can Supply Your Every Planting Need

WHETHER it's delightful old-timey hardy
flowers for your old-fashioned garden, ever-
greens—big or little, sturdy climbing roses,
shrubs or shade trees—any or all of them—that com-
prise your planting needs, we have the stock to supply
those needs.

No need to send to one Nursery for this; that Nur-
sery for that; and still another Nursery for something
else; and then have to write to a number of different
Nurseries to find out why this or that doesn't come.

No need to be held up by having to wait for some
certain kind of stock to be shipped from some certain
Nursery after all the other stock is received from the
other Nurseries.

When you buy from us, you make *one* responsible
firm responsible for *all* the stock you need.

In making your selections from our complete stocks,
you can do so with the assurance that you can depend
upon getting what you want. Its future can be de-
pendent upon as all of it has *backbone*, tried and tested
by our severe New England Winters; and because the
strong fibrous roots that make for that sturdy backbone
are all carefully preserved in digging up for shipment.
You get *all* of the roots, as well as all of the tops when
you buy Bay State stock.

With our catalogue before you, it will be an easy
matter to make your selections. You are most
welcome to it.



Something About Our Hardy Flowers

They are hardy
flowers that really
are hardy.

This rugged New
England climate of
ours automatically
culls out the weak-
lings from our stock;
and because every
plant that we sell has
stood the supreme
test that it imposes
you can be absolutely
sure of its hardiness.

Every plant has
good vigorous roots
and on most varieties
you can depend upon
bloom the first season
after planting.

Every plant re-
quires not the least
bit of coddling and
will come smiling
through rigorous winters.

From our Hardy
Flower catalogue, you
can select the old-timey
favorites that you will
want for your garden.

The Bay State Nurseries
672 Adams Street,
North Abington, Mass.

DAHLIAS Latest Introductions

You want the latest introductions. The newest
and finest in the world. The kinds that have not
become common. I have just what you want.
I originate them. I grow Dahlias exclusively,
about 1,400 varieties. I have the best kinds that
are more common, as cheap as 25 unlabeled bulbs
for \$1.00 and 15 labeled bulbs for \$1.00. F. O. B.
Westerly or add 25c. to pay postage in U. S.
Get my new free illustrated catalogue with cul-
tural instructions and descriptions.

GEO. L. STILLMAN, Dahlia Specialist
Box C-7 Westerly, Rhode Island

Hundreds of Plant Novelties

Lonicera Nitida, the hardy Evergreen
Bush Honeysuckle; Berberis Wilsoni—
25 cents each, delivered any place in the
United States. Buddleia Asiatica, Vibur-
num Foetidum, Rectangulum Stranvesia
and hundreds of other plant novelties.

COLLIDGE RARE PLANT GARDENS
Pasadena California



A Work Saving Result Insuring Sprinkling System For Your Garden

DON'T let all the painstaking work that you're going to put into that garden of yours this Spring; all the seeding, hoeing and back-aching—go for naught. Protect it against the dry weather days that come along and shrivel up your flowers or vegetables.

A Skinner System Sprinkling Line is your sure insurance against such a happening.

No trouble. No bother. Just turn on the water and it does the rest. Thoroughly and uniformly waters your garden with a fine mist-like spray. Does not pack the soil. Nor injure the finest foliage. Easy to put up, take down, or change location. A few minutes' attention waters your garden. Fifty foot line fully equipped costs \$13.75. Waters 2,500 square feet. For other lines add 25 cents a foot extra. For \$14 we can equip lines with an Automatic Turning Device, which will move the spray from one side to the other and then itself shuts off the water. Time of watering under full control. Send for full information about this Skinner Sprinkling System.

THE SKINNER IRRIGATION CO.

219
Water St.

Troy
Ohio

**SKINNER
SYSTEM**
OF IRRIGATION.

Vaughan's Gladiolus Bulbs



We are growers of these bulbs on our own farms, and the 1916 acreage was double that of former years.

**FLOWERS ALL
SUMMER FOR \$1**

There is no flower that is so easily grown and blooms so readily as the Gladiolus, and by repeated plantings a continued bloom may be had all summer long. The long spikes are graceful and fascinating in their great array of colors; cut as first flowers open and placed in water, the flowers develop for a week, even to the last bud. Commence planting in April and repeat at 10 day intervals until end of June, and you will have flowers until late autumn.

"HOMEWOOD" GLADIOLUS

75 Fine Bulbs, Many Kinds Mixed, for \$1.00. MAILED FREE

to customers within fourth postal zone (600 miles) from Chicago or New York.

For further zones add 16c in stamps.

"How to Grow" in every package.

To interest Boys, Girls, Young Women and Men in growing these flowers, we make the following exceptionally low prices for smaller bulbs, many colors mixed.

"KENWOOD" GLADIOLUS BULBETS

60 for 50c; 25 for 20c; 10 for 10c; all postpaid with our 160 page catalogue. Address Dept. 6

VAUGHAN'S SEED STORE

31-33 W. Randolph Street - - - - - CHICAGO
43 Barclay Street - - - - - NEW YORK

Hot Bed Sash

85c CYPRESS, well made, with cross bar, blind tenons, white leaded in joints, Glass, \$2.00 per Box

Sample Our Seed earliest vegetables in cultivation. Send 10c for one packet each, Robinson's Earliest Tomato, Earliest Round Red Radish, Earliest Lettuce, and we will include our illustrated Seed Catalogue, one 25c profit sharing coupon, one 10c profit sharing coupon and three silver premium certificates, all for 10c to introduce our "Best Quality Seed."

C. N. ROBINSON & BRO. Dept. 8, Baltimore, Md.

These Prices Are Your Opportunity

To introduce our mail-order department we are offering a fine lot of carefully grown parking trees, 2 to 2½ inches in diameter, measured 2 inches above ground-line.

	Per 10	Per 50	Per 100
American Elm	\$8.50	\$37.50	\$70.00
American Sycamore	7.50	32.50	60.00
Sugar Maple	10.00	47.50	95.00
Soft Maple	7.00	30.00	55.00
Norway and Carolina Poplar	5.50	17.50	32.50

Prices: f.o.b. Council Bluffs, Iowa. Terms: 20% cash with order or 5% discount for cash in full.

Order To-day—This offer is limited and may be recalled

MENERAY NURSERIES, Inc.
3101 Avenue A Council Bluffs, Iowa
"Here Since 1868"—250 Acres Nursery Stock

Gladiolus Bulbs From Hillair Gardens

will bring delight to every flower lover who will buy. They are doubly freighted with joy—the joy of the growers and the no less joy of the purchasers.

Varieties We Offer:

Kunderdi Glory, Niagara, Mrs. Frank Pendleton, Panama, LaLuna and the old time favorites, Augusta, America and Mrs. Francis King. No bulbs have been better grown.

Write for free catalogue

SAYLER & TAYLOR

Hillair Gardens Huntington, Indiana

Let Us Introduce Ourselves

By sending you by mail each or all of our 1917 special collections as listed below together with our new catalogue

16 Ever-Blooming Roses for \$1.00

These plants bloom the first and each succeeding year from early spring till severe frosts. They are noted for their exquisite coloring and delightful fragrance and the harvest of bloom they give amply repays for their trifling cost.

7 Packets Home Garden Vegetables for 50 cents

Boston Beans, Wax Beans, Sweet Corn, Radish, Lettuce, Onions and Beets.

16 Packets Flower Seeds for 75 cents

Columbine, Candytuft, Canterbury Bell, Coreopsis Grandiflora, Forget-me-not, Foxglove, Blanket Flower, Baby's Breath, Hollyhock, Iceland Poppy, Pinks, Larkspur, Oriental Poppy, Scabiosa Caucasica, Sweet William and Shasta Daisy.

SULLIVAN SEED CO., P. O. Box 84, West Somerville, Mass.

TREES

Everything for the Lawn, Orchard and Fruit Garden, Fruit Trees at \$10 per 100 and up. Shade and Ornamental Trees, Shrubs, Roses—at lowest prices. **BUY NOW**, before prices advance. New Specialties; Rochester Peach, Butterfly Bush, St. Regis Ever-bearing Raspberry. Send for catalogue.

GROVER NURSERY COMPANY
94 Trust Bldg., Rochester, N. Y.
Established 1890

BUY DIRECT

Beautify and make productive your idle land
by planting

EVERGREENS

1000 Three Year Old Trees for \$6.00

Catalogue and booklet on request

THE NORTH-EASTERN FORESTRY COMPANY, Cheshire, Conn.

SELL YOUR SPARE TIME

We will pay you well for all you have—every spare hour can mean money—by securing new subscribers to the World's Work, Country Life in America, and The Garden Magazine. Write to Circulation Dept.

Doubleday, Page & Company, Garden City, New York

Helping the Plant Dealer

THE best brains of the plant trade have tried to devise ways and means to overcome delays in the execution of orders, but they have nature to face, and it frequently happens that a sudden cold spell will freeze up all out-of-door stock, or that a few days will just as effectively put a stop to the filling of orders, and all of the well-laid schemes for the rapid and careful filling of orders goes for nothing. The only chance the plantsmen have, is for spring to open by the middle of March and stay open, permitting the filling of early orders and relieving the rush which is sure to come beginning with the middle of April, and lasting until the close of May, or later.

It is probable that the spring of 1916 was one of the worst seasons ever experienced in the plant trade. March was a real winter month and as late as April 8th there was a general snow storm which covered the Eastern States to the depth of three inches or more, and while the snow melted rapidly it brought business to a standstill and there was less than three precious weeks of time left that under favorable weather conditions would have seen thousands of orders filled and planted.

EARLY DELIVERY HELPS

The flower loving public can do very much indeed to help the general situation, relieve pressure in the store and nursery and so ensure better attention to individual orders by placing their orders early, and by taking early delivery of their plants as possible, and circumstances should compel late orders to wait gracefully until preceding orders are executed. Do not push nor trouble overworked plantsmen by frequent inquiries all of which consumes time to looking up facts and in answering, and otherwise hinder instead of hastening the work. You must be sure that every dealer in plants is just as anxious to have your order filled, as you are to get the plants, and at this particular time with a real shortage of skilled as well as common labor, the plantsman's lot is not a bed of roses, and we should all try to make it at least a little less thorny.

In the past few years there has been a widespread movement to relieve the congestion and consequent discomfort to buyer and seller alike of Christmas goods, by the advent of "Do your Christmas Shopping Early." This has resulted in quite an improvement to the benefit to all, by spreading over 6 to 8 weeks or more the vast amount of Christmas business, that was formally squeezed into 2 to 3 weeks.

CONGESTION IN APRIL

But the Christmas business rush in big stores was never worse than the congestion conditions found in most plant establishments during the height of the planting season extending from the middle of April to the end of May, and while each year more and more buyers take up the question of what to plant early in the year, and place their order a month or more in advance of the time they are wanted, there are still many more who do not think of ordering their supply of plants until planting time is upon them, and very properly their orders have to fall in line behind those who believe in preparedness, and are much disappointed when they have to wait two weeks or more before their orders can be executed.



Have You An Outlook Like This ?

DO your eyes find contentment in the shapely outline of fine trees or is the landscape marred by unsightly buildings, passing wagons and the neighbors' wash? No matter how pretentious or how small your grounds may be

Hicks Big Trees

will make them more beautiful at small cost. Thousands of splendid trees of all sizes are waiting the call to beautify your property and enhance its value.

10 to 16 ft. trees for lawn and landscape effects, 4 to 15 ft. trees for hiding unsightly views, 1 to 4 ft. evergreens for screening foundations.

Each tree is dug with a large ball of earth around the roots, then canvas-wrapped and roped to a wood platform. We ship successfully 1000 miles. Send for catalog of trees, shrubs, roses and hardy flowers.

Hicks Trees are Guaranteed to Grow

Hicks Nurseries

Westbury, L. I.

Box M Phone 68



FOXGLOVE

(Gloxina Flowered) white, purple, rose-spotted. Sweet William, rich colorings, Double Hollyhocks, pink, bright red, dark red, black. Strong hardy plants. Seeds, 5c. packet.

YE ROBINSON OAK CROFT, Pawtucket, R. I.

ris TO GET ACQUAINTED. Twelve choice Iris postpaid for one dollar. **Peonies** Darius, Dr. Bernice, La Tendresse, allido Dalmatica, Queen of May. Mrs. H. Darwin, &c. Send for list of Iris and Peonies. **GEORGE N. SMITH, Wellesley Hills, Mass.**

Trees, Shrubs, Plants For All Climes

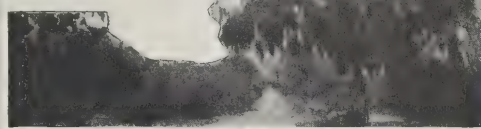
Our stock for 1917 is good, vigorous, well grown and of extra quality. We have a full line of fruit trees, plants and vines, also ornamentals, roses and hedge plants. Send us your list of wants. We will quote you attractive prices for first quality goods. No better can be grown.

We do Landscape Gardening

and tree surgery in all branches. Write for our catalogue today. It is free for the asking.

T. J. Dwyer & Co.

Orange County Nurseries, Box 12 Cornwall, N. Y.



"Strawberry Plants That Grow"

"PROGRESSIVE" Best of the Fall-Bearers, also Standard June Sorts, including Wonderful New Seedling, "COLLINS," and a full line of other Small-Fruit Plants.

Our 1917 Catalogue describes all these and tells how you may get a year's subscription to Garden Magazine Free.

C.E. WHITTEN'S NURSERIES
Box 10, Bridgman, Michigan

WAYSIDE GARDENS

QUALITY LIST OF

Hardy Plants and Bulbs

FOR FALL PLANTING

Makes Selection Easy

MENTOR,

OHIO

HARDY PERENNIAL PLANTS From a Specialist

Now is an excellent time in the West to plant these lovely and enduring flowers. My new special catalogue of Novelties and finest standard Hardy Plants will be mailed on application. It contains a superb collection of GERMAN IRISES, Fine sets of Phlox, Michaelmas Daisies, and Larkspurs and a host of the finest flowers to be had. All are delivered free at your home. Cultural Directions are given liberally. Mine is the largest collection of Hardy Plants in the West and I give the finest plants of the finest varieties to be had. Ask for catalogue D. Californian bulbs are out of season but Californian Native Hardy Plants, Shrubs and Trees are not and my handsome Californian catalogue will be mailed on application for catalogue A.

CARL PURDY, Ukiah, California

THE BEST IN DAHLIAS

My superb collection consists of over 200 varieties, carefully selected for size and profuse flowering. True to name. Send for list—free. 20, my choice, \$1.00; 12 higher priced, my choice, \$1.00, labeled.

MRS. E. PIOZET

Box 38, Hyattsville

Maryland



Healthy Gardens

You can have a garden that your neighbors will admire—one you will be proud of—a healthy garden, free from weeds and thoroughly cultivated, by using the

PULL-EASY

ADJUSTABLE

GARDEN CULTIVATOR

Instantly adjustable from 7 to 18 inches so you can cultivate the full width of any row, right up close to the plants without injuring them.

Used as a rake for preparing the soil. Does the work quicker, easier and better. Middle tooth can be removed for cultivating two rows at once. Light, sturdy, well balanced—a tool that makes gardening a pleasure.

For sale by most dealers. If your dealer hasn't it, write your name and your dealer's name on the margin of this ad, tear out and mail to us with \$1.25 and you will promptly receive your Pull-Easy by Parcel Post prepaid. Literature on request.

THE PULL-EASY MFG. CO.

201 Barstow Street

Waukesha, Wisconsin



The Wilson Way

Success With Sweet Peas

To one of the most successful growers and exhibitors of Sweet Peas in this section I am indebted for the planting directions on page 14 of WILSON'S SEED ANNUAL for 1917. These cultural notes are the secret of his success. Forty of the newest Spencers are offered in WILSON'S SEED ANNUAL for 1917, arranged conveniently as to color.

Send for your copy NOW and include 10c for a packet or 30c for an ounce of our SILVER GILT MEDAL MIXTURE awarded the Silver Gilt Medal of the National Sweet Pea Society of Great Britain at the Panama Pacific Exposition.—J. J. WILSON, Prest.

J. J. WILSON SEED CO., Newark, N. J.

NEW GIANT PRIZE-WINNING GLADIOLI

The home of Elm Hill Gladioli now offers a most wonderful collection of new Giant-flowered Hybrids to Gladioli lovers in search of the newest and best. The massive spikes bear immense blooms of sparkling lustre and exquisite coloring. Try these



Evelyn Kirtland, measuring length of spike (note yardstick) of Gladiolus named after her.

8 Superb New Kinds—

- Evelyn Kirtland**, Rosy pink fading to shell pink.
- Gretchen Zang**, color Beaute Poitevine Germanium
- Herada**, unusual glistening mauve.
- Wamba**, Enormous salmon.
- Cardisun**, Darkest of red, nearly black blotch.
- Bertrex**, Best white, extra fine.
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The Garden Gate Swings Open!

Before your eyes spread vistas of beauty and originality. The *whole world* has contributed this month to make this issue of The Garden Magazine a memorable event. From the wilds of Thibet and China to the dyke-guarded lowlands of Holland, from the peaceful waters of the Pacific to the rugged coast of New England the horticultural world presents to our readers, in this issue, a Review of Progress in Plant Life as recorded through New Creations or Introductions of rare forms of old types.

This month, more than ever before, we have felt the limitations of paper and ink and space in the presentation of the *new* things that make gardening in all its phases the fascinating occupation which it is to all of our readers. To plant a *new* plant, shrub or tree, to sow the seeds of new vegetables or flower—to watch over these valuable pets with a spirit almost akin to mother-love—those are the worthy actions which this issue attempts to stimulate in the hearts of thousands of our readers.

Will the March issue of The Garden Magazine succeed? Will it deliver the message entrusted to it by the editor and advertisers? Will it help to popularize the things offered and, by doing so, make America a land of better fruits and prettier flowers, more useful vegetables and more ornamental shrubs and trees?

Of course it will, and you, reader, are going to help. To help means to boost! To boost means to proclaim the message of this magazine, the foremost exponent of better gardening. To boost means to talk to all your fellow garden enthusiasts about more and better gardens as advocated by our mutual hobby, The Garden Magazine.

Please talk about your favorite gardening paper! Please say, when ordering seeds, plants or catalogues, that The Garden Magazine proved the incentive! It will help you to get just what you want, it will help us to prove to our advertisers that you are really the enthusiast of discriminating tastes which we *know* you are. May we count on you to tell others what you think of us?

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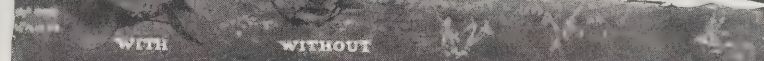
Immensely useful to all flower lovers and of particular value to all who have to refer frequently to names, explaining the name of every plant in cultivation, when the plant was introduced, from what country it comes and other similar facts, together with short cultural and propagation hints. Many plants bear a number of names, but the matter has been simplified by giving each in its alphabetical sequence, and whichever name the reader happens to know will direct him or her to the correct one.

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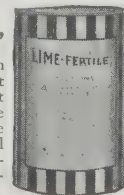


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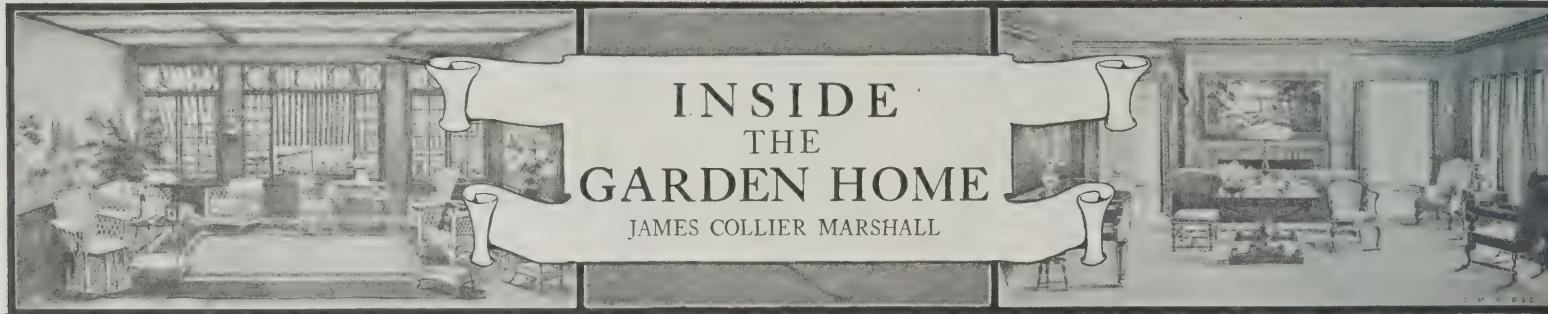
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“Taking Tea in Comfort”

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to “Inside the Garden Home,” The Garden Magazine, 11 West 32nd Street, New York.



This iron stick can also stand on its own feet

SINCE Americans have begun to take their afternoon tea less seriously and enjoy it for itself as well as for its tea-party-ness, our hostesses have begun to exercise their personal tastes in the matter of tea service with the delightful result that in almost every home this social hour is marked by some individual attention that adds tremendously to

the enjoyment of the occasion.

Interesting and beautiful as many of these tea parties are it must be said that few of us Americans have learned to take tea comfortably, or even to serve it in comfort. In this we are obliged to take off our bonnets and make a low salaam to the English who, above all things else, do this best. Never does an Englishman take his tea in an uncomfortable position and for long this has been laughed at as a part of his insularity, yet, now, scientists tell us that to give food to our tired, weakened stomachs in an uncomfortable position is downright harmful.

Thus we find a scientific reason for being comfortable at tea time and to reach this there must be plenty of comfortable chairs, properly cushioned and placed sensibly, regarding the light. Naturally the hostess wishes to seat her guests with their backs to the light, which is likely to place her facing it. Yet this may be



Equally comfortable for one or two people, this easy sofa is ideal for the tea time tête-à-tête and can be used satisfactorily in the boudoir

gotten around by arranging the table in the corner that will place her at right angles to the light. And the place for the tea table should be definitely decided upon in decorating the house. It should be so arranged that the hostess dominates from her seat the various groups of guests in the room and can control the conversation as easily as the teapot.

Also, it is infinitely more interesting if there are chairs or a chair and small sofa quite near the tea table though not obstructing with the service. This affords the hostess an opportunity to look after a difficult guest, or one she wishes especially to honor.

Very good looking and unusual is the tea cart illustrated here. Note its simple lines and

restraint of decoration. Somewhat English in its conception and feeling, though domestic make, it is equally as practical as the ordinary wagon and far more distinctive. It is even more attractive looking when not in use.

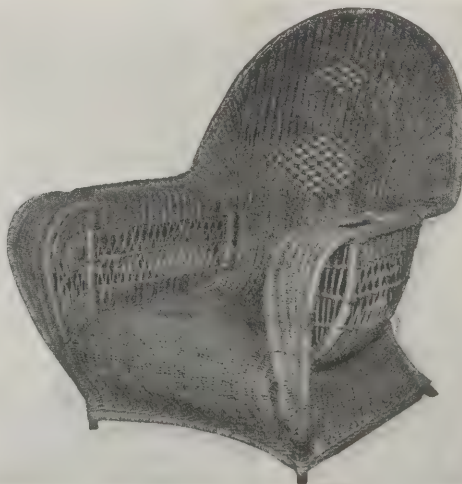
It works very simply. One opens the lids and by so doing lifts automatically a tray which holds the tea things. This is held fast by a little snap on the side which, when released, allows the tray to sink slowly into place pulling the lea together above it. There is, also, a solid mahogany t that slides into a groove immediately under the ch



There is a dainty distinction in this lustrous painted china caddy



Fully as practicable as the usual tea wagon, this one has the added quality of good looks in design which adapts it to most dining room furnishings



Here one may relax into the very arms of comfort, for this chair is built with that end in view, and take one's tea at ease



Not only does this cart carry in the tea things, but a space tray slides from beneath the body for practical service in hall or on a side table

If a problem grows in your garden write to the Readers' Service for assistance

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make equally ideal garden or pot plants. Planted in beds or borders outdoors, their large single or double flowers make a magnificent showing. They enjoy partial shade. As pot plants, two or more tubers in a 6-inch pot will make a great show throughout the summer and fall. Foliage is highly ornamental. In red, white, rose, yellow and orange color, in both single and double shape.

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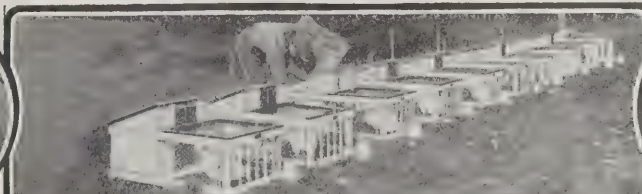
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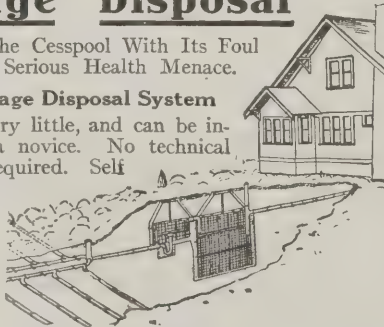
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Some New Flower Holders

SHALLOW bowls are still popular for dining table though the newer patterns indicate that those with short pedestals are gaining somewhat over the shapes. These pedestals are very good looking, m

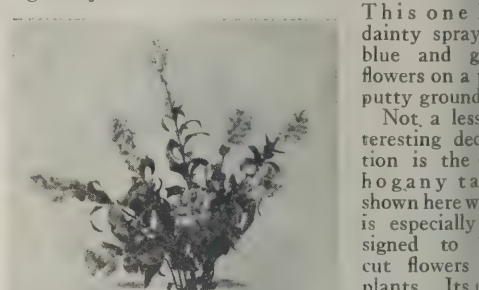


of them having some little ornament that gives the classic look.

Frequently the handles express this as is the case with the Italian pottery dish pictured at the top of



column, where a slight dissimilarity of curves serves to add to its beauty. These pottery dishes are excellent for fruits as well as flowers, their glazes blending softly with the colors of the fruits and flowers.



This one is a dainty spray of blue and green flowers on a putty ground. Not a less interesting decoration is the hoganyta shown here which is especially signed to cut flowers plants. Its looks speak for it and its price is only \$10. large cracklele on it costs \$4

Tubs for growing plants are not easy to come by. They are heavy and clumsy, and best are far expensive for ordinary purposes. The tin lined wicker baskets illustrated are none of the draw-backs, but light weight and cheap—\$5 complete—and looking, and strong enough to last many years.

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APRIL 1917
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You and your friends are heartily welcome to as many copies of the booklet as you wish.

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All our perennials listed here, are **pot grown from cuttings** instead of from seed. This guarantees to you, plants absolutely true to name and habit. They are sturdy, full rooted plants, every one of them. Shipped with the ball of soil on, overcoming the transplanting shock incident to the usual clump division method.

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12, 2 of each, \$3.50. 6 for \$1.90.

Delicata, Rosy pink....	\$.35 each
Iris Perry, Bright salmon	.35 "
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Oriflamme, Orange scar-	
let.....	.35 "
Perry's Favorite, Rosy	
salmon	.35 "
Perry's Blush, Blush	
pink.....	.25 "

Larkspur

12, 2 of each, \$7.50. \$4 for 6.

Rev. E. Lascelles, Deep	
blue, white centre, 5-6'.	\$1.00 each
Belladonna semi-	
plena, Sky-blue, rosy	
mauve centre, 2½'.....	.35 "
Moerheimi, Pure white,	
5-6'.....	.50 "
Salland, Dark blue,	
branching, 4'	.75 "
Capri, Sky-blue, much	
branched, 5-6'.....	.75 "
Lize van Veen, Cam-	
bridge blue, white eye, 6'	.75 "

Heliopsis

12, 2 of each, \$5. 6 for \$3.

Aurata, Pompom flowers,	
deep golden.....	\$.50 each
Cucullata, Bright clear	
yellow.....	.50 "
Gratissima, Reflexed pet-	
als, ochre yellow.....	.50 "
Imbricata, Lemon yellow	
Latiflora, Bright chrome	
yellow.....	.50 "
Zinniaeflora, Bright yel-	
low.....	.50 "

All the above are good for cutting, the flowers lasting a long time in water. Height 2-3 feet. All the varieties new.

Verbascums — NEW HYBRIDS

8, 2 of each, for \$3.

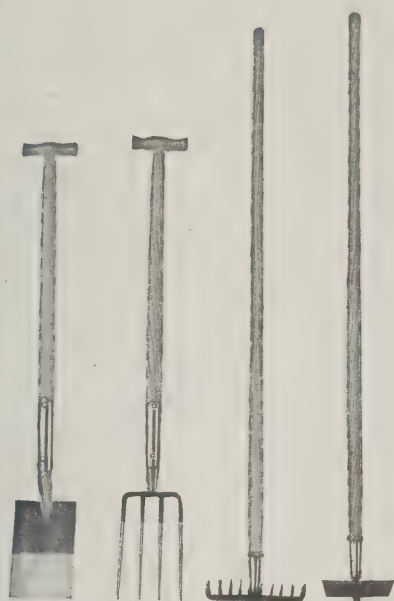
A. M. Burnie, Apricot, 3'	\$.30 each
Caledonia, Bronzy yel-	
low, 3'	.30 "
Densiflorum, Primrose	
yellow, mahogany centre,	
5-6'.....	.30 "
Mars, Buff, turning red	
toward centre, 3'.....	.30 "

Order early for early planting. Send for the "Nine Helpful Hints" Booklet.

Julius Roehrs Co

At The Sign of The Tree
Box 10 Rutherford N.J.

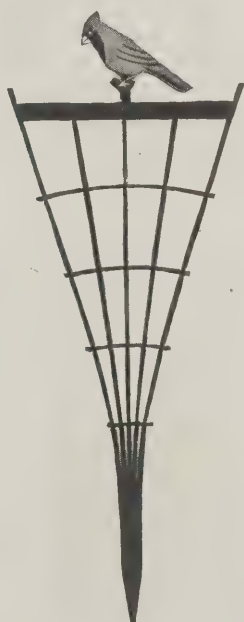
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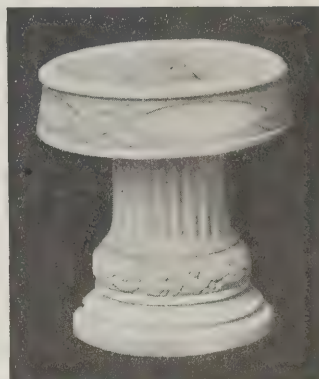
Garden Tool Sets—Three sizes, \$4.50; \$5.75; \$7.00.



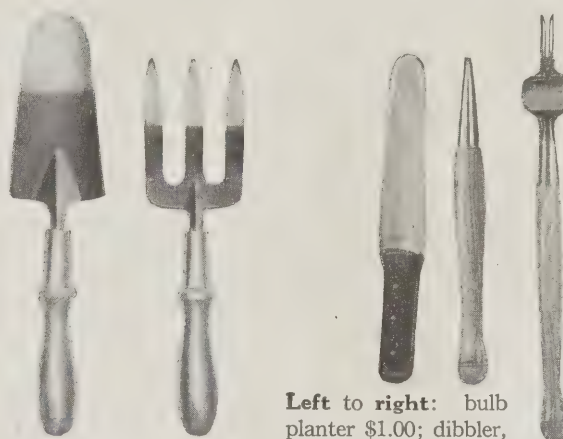
Wicker Garden Basket, complete with tools as illustrated, \$10.50.



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Garden Bird Bath of decorative stoneware, on a pedestal. The height is 18 inches and the price \$12.00.



Trowel \$.50. **Fork** \$.50

Left to right: bulb planter \$1.00; dibbler, \$.25; daisy grubber, \$.65

NOW is the time to get out in that garden of yours and get things under way for Spring. Whether you like your garden merely as a place to putter round, or whether you use it in a serious effort to offset the high cost of living, come to Lewis & Conger's for the tools so needful to your purpose.

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NEW YORK



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this year. It costs 18 cents a foot, and is worth every cent of it. Hose seldom wears out—it usually dies and falls to pieces. Cheap hose cannot last because it is made of worthless compounds.

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Department G Cambridge, Massachusetts

Some Good Plants for North Regions

WHAT new shrubs can I plant which hardy in New York and will add to the attractiveness of my home was asked me several people at the Western New Horticultural Society Meeting and I promised I would send a list to THE GARDEN MAGAZINE. So here it is!

If you are interested in planting some berry which will attract the birds and at the same time have a good appearance during winter time from their berries, I should be inclined to include the Barberries, both Common and Japanese, Snowberry and Coralberry. In something taller growing some of the Hawthorns, Crabs and the White Flowering Dogwood. The various and new Barberries, Flowering Crabs, Buckthorn and Sumacs, some of the Viburnums strike me as extremely interesting, also some of the Weigelas.

Of the berry-bearing shrubs worthy of mention are the Inkberry, Regel's Privet, Male-leaved Viburnum, Goumi, Winterberry, Viburnum Wrightii; this and Viburnum Opulus are probably the best red-berried Viburnums. The American Holly which is a small tree or green might survive in a sheltered spot, but Japanese Holly would probably live anywhere. Some of the Evonymus (another group of Chinese plants) have good colored foliage in the fall. Among these the winged Evonymus, E. alatus, which has a corky growth on its branches, is of interest.

Among plants with colored twigs is Green Dogwood, which is more hardy than Kerria which often shows a little winter injury in New York; the red-barked White and Siberian Dogwood, and there is the low Dogwood which has yellow twigs. There is the purple barked Willow and Black Raspberry. These all show up when planted in front of a background.

In Forsythias, which you will probably want to plant in order to get some early yellow blossoms in spring, either F. europaea or F. intermedia spectabilis should be used; all of the other kinds are not hardy in this section.

In the Honeysuckles, Lonicera Maackii var. podocarpa, which is a new one introduced from China and bears small red berries, is worthy of a place. It will grow 8 or 10 feet tall if given room like a small tree and is a very interesting plant. There is a wonderful collection of these Honeysuckles which have been brought in during recent years from China and other places and they will add very much to our gardens in the future.

A few of the Magnolias might be planted where they would need room and should not be crowded. Some of the kinds which will do well in this section are M. stellata, Soulangeana and Wilsonii. Among some of the flowering Crabs which are a mass of bloom in May and later are picturesque with their load of fruit and should be planted so they eventually fill 20 feet of space is Malus ioensis. There are double flowering one (Bechtel's Crab), a single blossom one; the latter sets fruit. Malus floribunda is very effective in winter with its fruit. Malus baccata is another tree-growing type. The Wild Flowering Cherries are beautiful and furnish a lot of food for birds. This list includes Bird Cherry, Sand, Wild Black, Mahaleb, European Bird Cherry and some of the Chinese and Japanese.

I judge most people will also be interested in planting some of the new Lilacs. There

(Continued on page 152)

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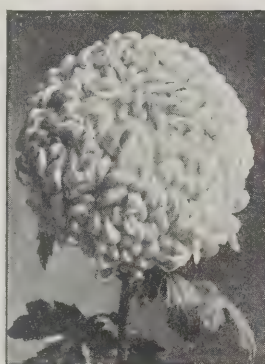


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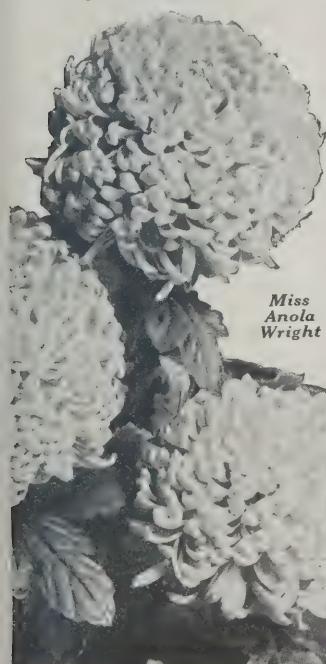


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Japanese Irises in Their Native Home

In the lower picture Japanese Irises are shown equally at home in my fields at Wyomissing. The Rev. Dr. Rice, who came here to see them after having spent many years in Japan, expressed his surprise at the luxuriant growth and abundant bloom. He stated that it surpassed any that he had seen in Japan.

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The completeness of the Japanese Iris section is only a hint of many other suggestions

of interest to the garden lover. *Peonies* in over 500 varieties; the splendid collections of Lemoine's *Lilac*, *Philadelphus*, and *Deutzias*; the section devoted to *Delphiniums*, *Hardy Phloxes*, *Roses* and *Rock plants*, are all notable features in this book of 112 pages of text, to which are added 30 full page illustrations (13 in color). If you are a lover of these things I shall be glad to mail you a copy free on request.

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(Concluded from page 150)

wonderful collection of French origin with which you are probably familiar. The plants can be left to stand singly, but I think they are often most effective when they are given a setting with a background of other plants.

As to the Evergreens; among dwarfs is the hardiest strain of English Yew, *Taxus baccata* var. *repandens*. It may be used if not too exposed; also there is the more hardy Japanese Yew (*Taxus cuspidata*) also *Taxus cuspidata* *brevifolia* or short leaved. These are hardy. I find the short leaved Japanese Yew a very effective low-growing shrub and owing to its slow growth the specimens are more expensive than some of the others.

Among Junipers there is *J. horizontalis* which may be used for ground covering, also the prostrate *Juniper nana*. *Juniper chinensis* *Pfitzeriana* which lives well under our conditions is taller growing. I could also give you a longer list of Junipers which would be worth planting, also some of the new and rare Pines which have come in recently from Japan and one or two from parts of Europe, such as exposed elevations in Serbia.

Some Mahonias, Japanese or American would be worth including, and because of interest a Japanese Umbrella Pine. Canadian Hemlock would probably find a place as a background for some of the other things. It is one of the finest trees we can use for planting in a mass and instead of a Colorado Blue Spruce I would suggest a Silver Fir which has blue-green foliage like a Blue Spruce, but is more hardy. The Chinese Arborvitae has a very deep-green color and is more delicate in its makeup than the American; Nordmann's Fir has a wondrous dark-green foliage. For common hedge planting or to fill up for awhile Norway Spruce or American Arborvitae can be used to give quick effect, but a hedge of Japanese Quince, if one will spray for scale, is beautiful early in spring. American Arborvitae makes a good screen hedge.

One other thing I would like to mention is *Sorbaria arborea* which is one of the Spirea group and is a particularly interesting plant for its mass of white blooms in summer. For a plant for bloom in the winter, a mass of yellow bloom in November and December, and of interest to the children the Witch Hazel, *Hamamelis mollis*, is the best.

I have not mentioned anything about the new Barberries, but there are some of decided value for us, as *B. verruculosa*, also *B. Gilgiana* and *B. aggregata*. Some of these are evergreen and in addition are desirable in other ways. They will improve any hedge planting you would make and give color during the winter to clumps. There is a hardy Cedar of Lebanon, *Cedrus Libani*, which I saw growing in Boston; it is slow-growing. I saw specimens there which were 30 years old, but it strikes me as well worthy of planting.

If you want something to cover a building, the Evergreen Bittersweet *Evonymus vegetus* is new and hardy; it bears red berries. There is a house at Erie, Pa., on which this has climbed to a height of 30 feet.

Among the *Deutzias*, *gracilis* has very good foliage and flowers and is useful for planting on the sunny side of the house. Among *Spiraeas* *Thunbergii* has a place because of its dwarf habit and good flowers and Anthony Waters on account of its blooming late in the summer despite the objection to its color that some purists feel. Some of the *Wichuraiana* Hybrid Roses keep their foliage late into winter. There is no end to the good things available now for beautifying our grounds.

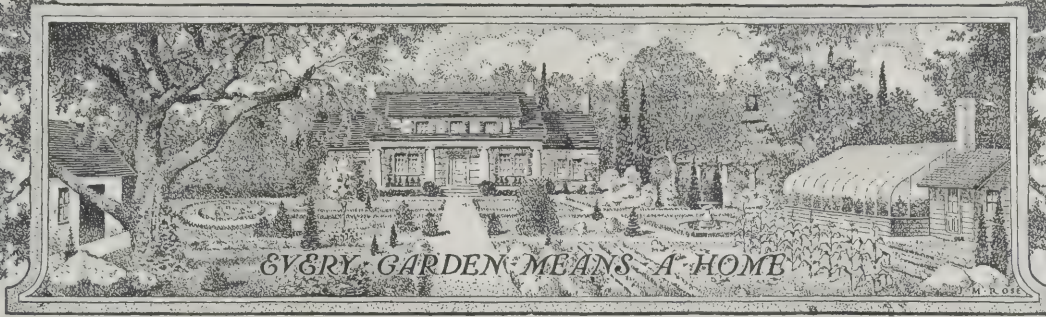
Geneseo, N. Y. SAMUEL FRASER.

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VOLUME XXV

APRIL, 1917

NUMBER 3



AMONG OUR GARDEN NEIGHBORS

Some Good Things Found.—From the attractive covers and well written advertisements, all through, I have enjoyed THE GARDEN MAGAZINE of 1916. I very much appreciated the articles by Mr. E. H. Wilson which I read and re-read. [These have just been republished in book form.—*Ed.*] The April number was especially helpful—the articles on “Roses” by Harold Staples and “Simple Rock Garden Effects” by H. S. Adams I often refer to. The September number was a joy—what Mr. Melish wrote about the “Iris,” and Mr. Saunders concerning “Peonies” interest me immensely. “Foundation Planting” by Dr. Miller in October and the article on “Darwin Tulips” by Mr. Duffy made that number valuable to me; Mr. Duffy writes in such a cheerful mood that it is like hearing from a personal friend. Frequently there are articles on subjects in which I am not particularly interested, but I pass them by with the thought that they will be helpful to some of our other friends; and of course, there are many of us to be considered. It gives me pleasure to congratulate you on THE GARDEN MAGAZINE of 1916 and I have great confidence in your ability to satisfy reasonable garden lovers for this coming year.—*Mrs. Katherine Fellows, Belvidere, Ill.*

Chrysanthemums de Luxe.—The GARDEN MAGAZINE suits me tip-top. The recent article telling what Rhododendrons to plant is very valuable and I shall discard some I have and get varieties that will respond to good treatment. The articles in the Readers’ Service I wouldn’t miss, the notes of hurry-up device plans, the planting tables, the varieties of both vegetables and flowers to plant and how to plant them are all exceedingly interesting and helpful and just what we want. Keep it up! I cultivate some two dozen varieties of Chrysanthemums in the greenhouse. Last year I acquired Wm. Turner; it stands head and shoulders above the rest. Are there more like it? One can’t select from a catalogue. A short article on the Chrysanthemums giving the names of the six largest and best all around Chrysanthemums I feel sure would interest many of your readers.—*Olaf P. Frederickson, So. Coventry, Conn.*

[Perhaps some readers will tell us what they have found to be the best half dozen Chrysanthemums, large flowered of course.—*Ed.*]

A Japanese Plum.—On page 224, issue for January, A. Van Gelder describes the growth of a Japanese plum and calls it Abundance. It is probably the Burbank which does grow laterally, whereas, Abundance grows vertically. There is a treat in store for A. Van Gelder if he has never eaten a genuine well-ripened Abundance plum. The Burbank is firm while Abundance is a veritable goblet of nectar.—*Geo. H. Bedford, E. Stroudsburg, Pa.*

Experience with Mexican Tuberose.—The catalogue describes it as “beginning to bloom in May” but also says “nothing will kill it but frost.” Should they be potted in the house now and transferred to the garden “when all danger of frost is over?” I got blooms from mine the first year. In September *not in May*. Last year, however, they bloomed not at all. Aside from this “ever-blooming” quality, the only point in their favor seems to be that they may be lifted each fall and grown again the following season. I should like to hear from others. My garden is only a border 10 x 125 feet, but I extract much inspiration from THE GARDEN MAGAZINE none the less—have devoured it for ten years.—*Flower Lover, Ill.*

[The Tuberose flowers normally in late summer from spring planting, but can be forced earlier. The bulb will not endure frost and is best taken up and dried off for winter rest.—*Ed.*]

A Trick with Poinsettia Cuttings.—This city has started a “City Beautiful” campaign. Many timely suggestions are being passed from one lady to another, such as: In planting cuttings of Poinsettias it is well to split the end that goes in the earth, thus giving more surface of the plant to the earth. It has proven of advantage also to place a bean, pea, piece of rice, or other similar seed in the lower end. This seed sprouts quickly and becomes a root for the Poinsettia. These suggestions might reasonably apply to any cutting. With Poinsettias it is also suggested that the top end be filled with very damp earth. Many people complain of the ants. One lady puts grits near the seeds. The ants eat the grits first thus giving the seeds time to sprout.—*Mrs. Ida Lacy, St. Augustine, Fla.*

[Let the good work go on, here and in every other city till our whole country is transformed

into a chain of garden cities, thanks to the Garden Clubs, etc.—*Ed.*

Is the Globe Thistle a Bad Weed?—In the February issue the Globe Thistle is illustrated and described as a stately border plant. Magazines with the influence of yours do the country very great injury when suggesting, Thistles, Daisies, etc., as garden flowers. I know their beauty but every farmer knows them as a curse.

One of the worst weeds the Horse Nettle which is spreading over the country, and which it is almost impossible to eradicate was introduced by an enthusiastic botanist, into his garden. If you once have occasion to fight Thistles, Dandelions, etc., you will realize what work is.—*John Welsh Dulles, West Chester, Pa.*

[Regretfully, we are unable to follow our correspondent. The Globe Thistles (Echinops) have decided garden qualities that make them desirable. The garden and the farm points of view may not always be identical, but we think our correspondent is unduly excited. Has any one, as a matter of actual fact seen even a half acre stretch of Echinops? True, an occasional plant will be found in waste places, but even then it is hardly justifiable to denounce it as an obnoxious weed. Let’s be fair to all!—*Editor.*

To the Lovers of Humming Birds.—Humming birds, like all the world, go to dine where good food is to be had. By supplying a garden with flowers that cater especially to the long bills and hollow tongues of the hummers, one can entice them to be constant visitors all summer. Some flowers, like the dainty Jewel Weed, are fertilized only by the humming birds and depend upon them for their very existence. Others, though primarily adapted to the humming birds, admit other visitors. A garden planted with Larkspur, Lychnis, Bee-balm (cousin of Bergamot the spicy) Columbines, Sweet William, Gladiolus, Foxglove and Monkshood will offer them an enticing feast. I have seen the birds try to pry open the petals of the still closed flowers of the Trumpet vine. Before the Hollyhocks are unfurled, while the tightly rolled petals still make a sheath-like tube, the birds plunge in their long bills, though I have never seen them about the fully opened flowers.

They hover by the hour over the *Nasturtium* beds. They pay vagrant calls on many other flowers—*Primroses*, *Geraniums*—in fact, they thoroughly patronize a garden which offers them a feast of honey and nectar.—*G. F. Alsop, N. Y.*

Right up in the Front Seats!—Well, three spring numbers of the *GARDEN MAGAZINE* are at hand, and I see you've "gone and done it!"—put the subscribers right in the front seats, and relegated the contributors to the rear of the house. I knew you'd been considering that move for some time, but I doubted if you'd venture it, for it's something of a radical de-



Here's a scheme that protects *Crocus* flowers from the pestering destructiveness of sparrows

parture. Apropos of the change, I have a little personal confession to make: While I have occasionally written for the front pages, it has for a long time been the back pages, the "Odds and Ends from Everywhere," that I read first when the magazine came to hand. They had what in the popular fiction magazines they call "human interest." And they had also garden interest; little things that the regular contributor would never think of writing about; little points on culture, or varieties, or the behavior of certain plants under special conditions, that he would never get to, or could not know about. This move, it seems to me, will do a lot toward making *THE GARDEN MAGAZINE* less like a book and more like an interested and experienced friend coming to walk with us in our gardens every few weeks, and letting us know what their garden neighbors are doing, and finding out. Too bad your subscribers are scattered so far afield that they can't be got together once in a while for a good old-fashioned "meeting"; but this, it seems to me, will be the next thing to it. Good luck to "the Neighbors!"—*F. F. Rockwell.*

[Can't we have both? The garden gate is always open at Garden City and a cordial welcome is extended to any neighbor who favors us with a visit, as indeed many do each summer. I like that idea of a real "field day" with a tent on the lawn, if a date can be arranged to suit, say in Peony time; or a united pilgrimage to some centre of great garden interest. What would you have?—*Ed.*]

Delphinium Zalil in Pennsylvania.—Some time since a contributor famous for her gardening experience speaks of never having seen *Delphinium Zalil* in flower. That mention inclines me to speak of the plant, which flowers in my garden in early July, in ordinary light garden soil. The leafage is very like that of the annual stock-flowered *Larkspur*, fine and glossy and wilting easily when cut. The plant is three and a half feet high, two feet being

spike. Individual blossoms are pale butter yellow with a dash of egg yellow at the eye, not more than three quarters of an inch in diameter, carried stiffly out on inch long pedicels from the stalk. Side spikes have not yet begun to come out, but are well budded. The whole appearance of the *Zalil* is that of a wild flower not yet worked up by gardeners, light, pretty, and not very conspicuous. If one had a large bed of it to cut from, it would be an odd and charming table flower with feathery grasses and some light greenery like the sweet hay fern of summer meadows. I am growing it for an experiment in crossing with the highly developed blues of the *Kelway Delphiniums*—a venture which I do not think can come to much good, by the way, because the types are too far apart.

If any one wishes to grow the *Zalil* for itself because it is a rare plant, I cannot describe its general type better than by comparing it to the *Habenaria* group of wild orchids. *H. orbiculata* in greens, and *H. speciosa*, the tall fringed spike in pinky purples, might find the *Zalil* a full sister so far as general floral effect goes. The light and open spike of the *Habenaria* genus is nowhere so well imitated as in this *Delphinium*, and the twisted spiral rank of the flowers on their scape is noticeable.—*E. S. Johnson, Pittston, Pa.*

Guarding the Crocuses.—Crocuses, and other low growing flowers of spring, are often attacked by small birds. Whole beds of these blossoms are sometimes sadly mangled and most gardeners are at their wit's end to know how to meet the difficulty. One plan that works is shown in the accompanying photograph. Short stakes of wood are pushed at intervals into the ground and fine black cotton is stretched in between these. The cotton is almost invisible, yet it affords an ample protection for the flowers. A bird while trying to make an attack is seriously alarmed on coming into contact with the threads and, suspecting a trap, is not in the least likely to make a second attempt.—*S. L. Bastin.*

Transplanting the Papaw.—In these pages for January, 1917, Mr. W. L. Wilson, of Indiana says: "If a Papaw plant found in the woods could be transplanted with enough care and earth, no doubt it would live, but it seems that by the time a Papaw seedling is big enough to be found it is too big to transplant, and the result is, that even when great care is used, it dies." Now for some evidence:

It was early in November, 1915, that a friend brought us from some distance eighteen Papaw sprouts. They were 3 or 4 ft. high and about $\frac{1}{2}$ in. in diameter; had been "grubbed up" on a piece of land he was having cleared. They had indeed been grubbed, for most of the roots had been left in the ground; but as I had wanted a Papaw "patch" for a long time, I commenced to eat Papaws then and there! The sprouts were "heeled in" tied up in a bunch—standing upright—just as I had received them. This was done with the intention of planting them in a few days, but as we were busy building that fall, they were left there until spring. During the winter I read several articles to the effect that they could not be transplanted successfully, so by spring time my Papaw "patch" was mighty small. As soon as the ground was in good condition for planting I proceeded to work, but the sprouts seemed "as dead as a door nail." The tops were all shriveled and the wood almost black. As we did not need the ground where they were at that time I did not even pull them up.

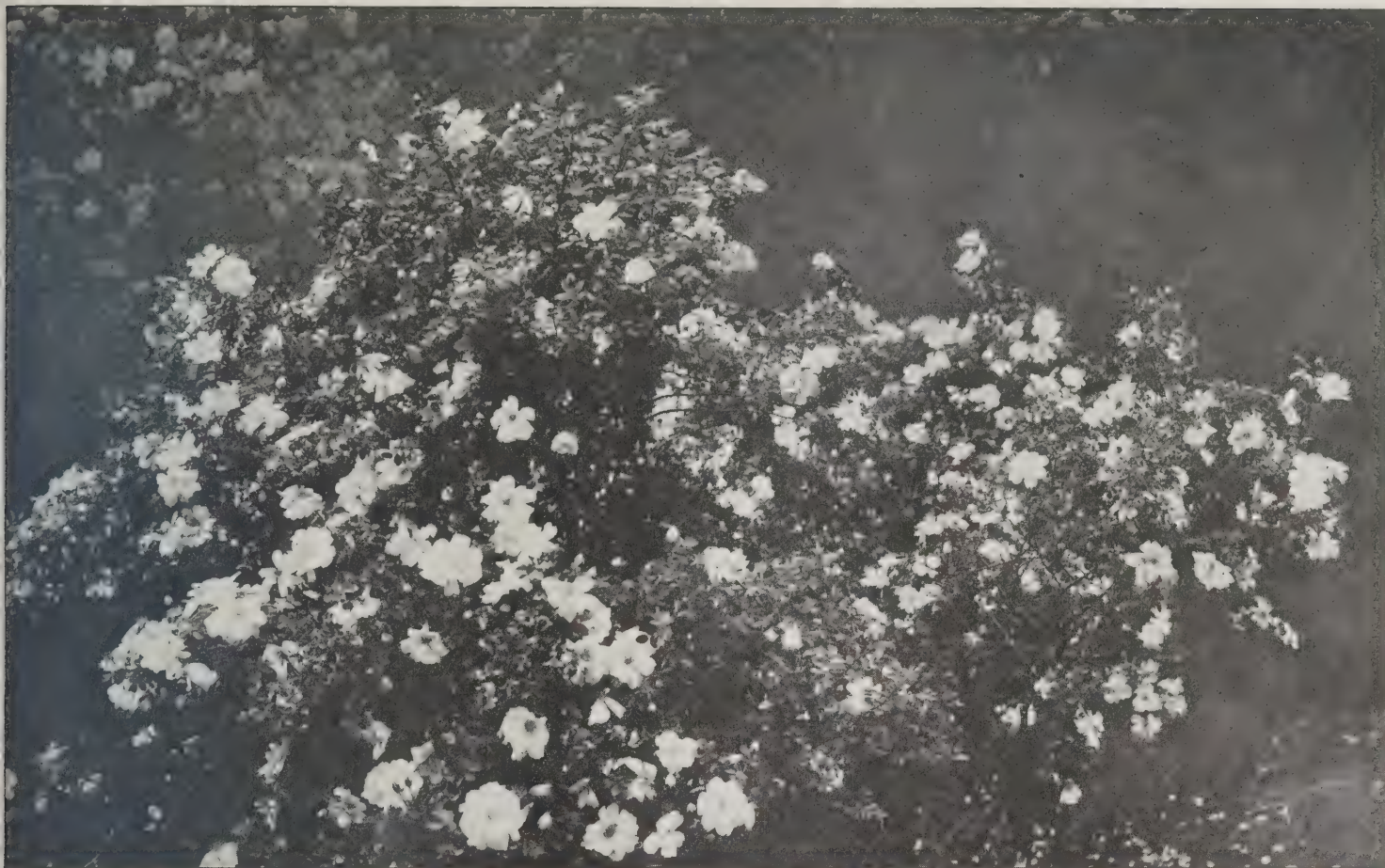
Some time in June that particular piece of ground was needed for strawberry plants. I noticed one of the Papaw sprouts had a small new growth near the ground and decided to plant that one, just to see what it would do. I pulled up the whole bunch and found that all were alive from six to fifteen inches above the ground, but the roots had made no growth at all that I could find. I washed all the earth off the roots, then lay them in the shade and let them dry; let them lay until they were good and dry—that was all wrong, according to the Law and the Prophets, wasn't it? I cut back the tops to live wood, and the roots, too! Most of them were dead two or three inches from where they had been cut off. By the time I had that done the root system was mostly a memory. Then I dipped all the fresh cuts in melted wax, and planted these sprouts in fairly good garden soil. After planting I placed an eight inch drain tile over each plant and where they were more than a foot high I put two tiles, one on top of the other. We had a very hot and dry summer. The Papaws were watered once in a while, not regularly, nor as much nor as often as they should have been.

Now, I come to the strange part of it. *They all lived!* Each plant put out from two to seven shoots, and each shoot made a growth of not less than two inches (and some as much as eight inches) in length. They seemed to go into the winter in good shape. Now I have been wondering what did it. Was it drying the roots; the grafting wax; or protecting them from sun and wind? Or did they grow in spite of it all? Anyway, when I have trees or shrubs that are said to be hard to transplant I am going to try the washing-drying-grafting-way, protection from sun and wind method.—*Th. G. Mistry, Indiana.*

Mrs. Sargent's Lily.—This Lily has been under trial and observation now sufficiently long for us to decide that it is really what it's claimed, a perfectly hardy garden counterpart of the Easter Lily of the florists. Coming to us at the same time as the Regal Lily, it has been somewhat overshadowed by the glory of that, but *Lilium Sargentiae* is good enough to stand on its own merits and planted along with *L. regale*—comes into flower just as its companion is passing out, and the two plants get on very well in company. They like similar conditions, but *Sargentiae* in my observation resents enriched soil conditions even more than



Mrs. Sargent's Lily, with flowers of pure white, six inches long and fragrant, is a perfectly hardy plant, blooms in early summer



Could any hardy shrub be more gorgeous than the Persian Yellow Rose with its profusion of golden yellow flowers and it is quite hardy too!

does regale. If planted in the open border, where it has room to grow naturally, where it is not fussed over and interfered with and in a soil not by any means rich, the big white trumpet of the Sargent Lily is indeed a pretty picture in midsummer. It is pure white, the petals have great substance and the flowers exhale a characteristic Lily fragrance. It is indeed a magnificent flower and has proved itself quite hardy in New England. The plant grows from four to eight feet high and bears about half a dozen or more flowers from five to six inches long. The leaves are thickly scattered and in the axils bulbils are borne in profusion, from which new stock can be raised.—L. B.

Crimson Giant and Icicle Radishes.—I noticed in Mr. Kruhm's article on radishes (which appeared some time ago, and is "re-capitulated" again in the January issue) that he has the following to say about Crimson Giant Globe, and Icicle radishes: Crimson Giant Globe, first roots ready in 26 days; 50 per cent. ready 17 days later; keeping quality, ten to fourteen days. Icicle, first roots ready in 35 days; 50 per cent. ready 8 days later; keeping quality, good as long as they last. I have grown both these varieties by the thousand for market, in frames and outside, and my experience with them has been quite different. Planted side by side in a cold-frame the first roots of each were "big enough to eat" at the same time, just inside the month, or 28 to 30 days. First out-doors planting, with ground still cold, takes a few days longer. For market they are allowed to get a little bigger, as not so many are required for a "bunch." [Incidentally, there's an argument for the man who wants to know if

it "pays" to grow his own vegetables.—Ed.] and we usually got one small gathering of Crimson Giant Globe three or four days before Icicle was ready. For home purposes, Icicle is ready on an average of five days after Crimson Giant Globe.

As to keeping qualities, or length of time the roots remain in good condition, I have found Crimson Giant Globe *far superior* to Icicle, there being crisp, good-flavored roots long after Icicle ceased to be fit to use. With me Icicle, which continues to develop very rapidly after reaching edible size, gets "pithy" and goes hollow almost to a root, while a large percentage of Crimson Giant Globe are still in good condition—too large, but crisp and solid; more pungent of course than when younger. In fact, I have cut open many left-over roots that had sent up seed stalks, and found them still firm, stringy (a fibrous support or "root-system" develops in the bulb to support the tall top) but still free from pithiness, and for any one liking a real "hot" radish, still good to eat. The men frequently peeled and sliced them as a "relish" with their lunches, but they were too *Mexicano* for me! While both are small, however, Icicle is the more pungent. While Crimson Giant Globe is not recommended for growing under glass, as it belongs to the "large top" type, I have found it more profitable even for that purpose than "Rapid Red" and other "forcing" varieties, because it takes so few roots to a box, and they "bunch up" so much more rapidly—an important item with present prices of labor.

In short, personally I consider Crimson Giant Globe the one best bet for a general purpose early radish, inside and out. Under irrigation, it can be grown right through the

summer. But one word of warning—get good, true seed! I made one planting a few years ago that developed about every red radish in creation, from the old Scarlet Turnip to fuzzy-rooted parsnip-shaped mongrels, *except* Crimson Giant Globe.—T. F. R., Connecticut.

A Word for the Persian Yellow Rose.—We often hear expressed the desire to have in our gardens a pure yellow Rose belonging to the H. P. or H. T. section with all the good qualities of a Frau Karl Druschki or Caroline Testout. Such a Rose would certainly be a great addition, but until it does appear—and this does not seem probable in the near future—I think more attention might be given the good yellow Roses we already have. The Persian Yellow Rose is a very old friend in many English gardens; and as it is equally successful here one cannot too highly recommend it to those who would have beautiful Roses. Very pleasing results may be had by planting a bed of this Rose, or a group in the mixed border will make an attractive mass of pure yellow throughout the summer. An open sunny position and a well-drained soil are necessary; but, with these given there is little further attention required, although a moderate amount of pruning occasionally will prove beneficial. As numerous stems are produced from the roots I have found it most satisfactory, if one does prune, to entirely remove a few of the older stems instead of merely cutting them back part way. This will be found to give the plants increased vigor and a better appearance. The sweetness of this Rose, its beautiful color, the long season of flowering and absolute hardiness entitle it to a prominent place in all gardens.—A. E. Thatcher, Maine.

Starting Seeds in the Windows.—For years I have taken THE GARDEN MAGAZINE and value it very highly, and am particularly interested in your new feature "Among our Garden Neighbors."

So many books and papers deal in such large terms, thousands of bulbs, hundreds of this and that, that the ordinary gardener is discouraged. Yet one can raise a goodly amount without a hot bed or conservatory, just in ordinary windows. With three good sized windows I have raised six hundred seedlings and transplanted them in tiny pots. I would like to call attention to the joy to be had with hardy Chrysanthemums both single and double, preferably the former, such wonderful pastel colors and shading, and such quantities of blooms! I planted mine in the house the latter part of March, the first year had a goodly amount of blossoms, the second year a great profusion till frost. From two packages of seeds I got four dozen fine plants. Another late discovery of mine is the double white Morning Glory which blossoms till frost most profusely and the blooms keep open till late afternoon.

It is fine for covering stumps and trellises or for a background for a hardy border. I use it on wire netting as a background for a hardy border of purples, blues, lavenders and white with a little light pink—this is very effective. It is such fun to experiment though of course one must not expect to always succeed.—*H. H. Ossining, N. Y.*

Dahlias from Seed in April.—Flowers from seed the first year. "Impossible!" is what greeted me when last April I planted Dahlia seeds in flats. True, I could have bought a half dozen roots for a two dollar bill, but I had read in THE GARDEN MAGAZINE that from the seeds came the new varieties. Perhaps the element of the game, call it gamble if you wish, is stronger in some than in others. To me there is a strong fascination in tending for a plant not knowing into what it may develop, but also knowing that out of thirty I may have a few rare plants, some good ones and of course some odds and ends that duplicate my old stock. In August and early September I called in my doubting friends.

From the point of the gamble I was lucky.

Beginner's luck! At the end of the row stood a giant of his kind, towering five feet in height over all others, topped with a magnificent single blossom seven inches in diameter. The heart of gold surrounded by deep velvety red petals. Next to this was a pure white Cactus, a beautiful flower with long stiff stem. Near by another Cactus—the inside of the petals a soft reddish yellow, the outside a bronze color. There were pure gold Shows; single yellows which worked up well in large bouquets of cut flowers; double reds and single reds. Other looked as if more than one paint can had been spilt on them. There was a wonderful assortment, an assortment that would make happy the heart of any lover of the flower.

With the variety of blossoms also came the variety of foliage, some tall, some short and branching, ideal for hedges. Some with broad leaves others of a soft green and as feathery as fern. But of all my best prize was a soft orchid pink with broad petals which curled ever so slightly at the ends. The heart was a deep firm ball of unfolded petals. It was a beautiful plant branching well from the ground.—*Winnina E. Brownson, Cedar Rapids, Iowa.*

THE SMALL GARDEN PLOT AND THE HIGH COST OF LIVING

G. W. HOOD State University
Nebraska

WHAT CAN BE DONE BY EACH INDIVIDUAL TO COMBAT THE INCREASED COST OF FOOD MATERIAL

[EDITOR'S NOTE:—Each individual reader of the GARDEN MAGAZINE is in a peculiarly favorable position to exert an influence on public opinion concerning the production of food crops in the home garden. National movements are under way to stir up action among those who have the opportunity but who as yet have not seen just how to do the thing in mind. People generally do not understand the possibilities of small areas.]

SHOULD a nation suffer for a waste of its opportunities? Is not the high cost of commodities only an answer to this waste, and a reflection of our great extravagance?

Recently three committees met in New York to investigate the high cost of living. Their findings on the subject did not warrant any short cuts to the reduction of the cost of commodities, but they were of the opinion that it might be offset by better organization and more coöperation. This report not only agrees with other more or less local investigations going on in various parts of the country, but it also draws the same conclusion. After a careful analysis of the situation it appears to me that all these reports shed very little light on the true situation. I believe they are attacking the problem at the wrong end. There exists in this country to-day an unusual and never-before-experienced condition, brought about by no act of our own, which we, as a nation, cannot change. Without a doubt the great European war is either directly or indirectly the cause of the high cost of every commodity. Can you expect anything else? Isn't it just as natural to have this condition existing in our country to-day as it is for water to flow down hill? We didn't start it, we can't stop it. Can we do anything to relieve this distressed condition?

If my analysis of the present situation is correct, there is only one remedy, and that remedy lies in the increased production of our living commodities. I neither mean the production of wheat and potatoes on a larger scale, nor the planting of more acres of peas and

beans to flow in the regular channels of trade, which is offered to the foreign buyer.

One way seems to be open, and not only to those individuals who own farms or control large tracts of land, but open to millions of consumers all over the country. These millions can in a way be producers. Every consumer can produce edible products that do not flow in the natural channels of trade, but which flow in the all important direction of the family table. Figures and facts stand ready to prove the assertion that millions of dollars could be saved annually if each consumer in large and small towns would make his home plot or an adjoining vacant lot into a family garden.

You do not have to go out of your own town to find these unused and available spots. Possibly at your own backdoor or by the side of your kitchen window, there is the opportunity! You know it too; but still assure yourself that it is of no practical value. Unfortunately there are millions of people who think the same, and that is the reason why they and the nation are lamenting the fact that every commodity is so high in price. Do your duty now. Become a producer in a small way. Add your energy to that of your neighbors, and the total combined product will mean millions of dollars to this country, as well as a great saving to yourself. Now is the time to think, plan, and act. See that your home plot, your neighbor's backyard and vacant lots in your district grow vegetables, not weeds.

Did you ever stop and think of the great number of vacant acres in our cities? Did you ever figure up what these vacant acres could produce? Did you ever think that you are to

blame for this woeful waste of nature's gift to us? Wake up. Look around. Get busy.

FACTS AND FIGURES

Small areas, such as city gardens occupy, and ranging from plots 10 by 10 feet to 40 by 60 feet produce from 1.4 cents a square foot to 3.8 cents a square foot. A trifling amount you say. Why should I plant a garden when I can only make 1.4 cents a square foot? Multiply that 1.4 cents by 43,560 or the number of square feet in one acre, and the result is \$619.84. If you multiply the number of square feet in an acre by the maximum yield of 3.8 cents per square foot you would have the sum of \$1,655.28, the maximum income from one acre. A total return varying from a minimum of \$619.84 to a maximum of \$1,655.28 an acre is no trifling matter. Think of what it would mean to your community to have every square foot of vacant land produce even the minimum! Think what it would mean to increase the total production of our country by this method. Remember now, these products are not for sale, they are not to be shipped to Europe, they are for the family table. If every family became a producer many problems in the high cost of living would be largely solved.

Six hundred and twenty dollars are the minimum returns from an acre of backyard gardens; sixteen hundred and fifty dollars is approximately the maximum income from an acre of vacant lot and backyard gardens. These figures are not theoretical, they are from actual trials. They are not taken from one or two cases, but are the results of a series of twenty different combinations and the average

12" Onions	12" Peas fold by cabbage	12" Eggplant	12" Celery	12" Radishes fold by Beans
12" Radish fold by cabbage	24" Beans fold by cabbage	24" Sweet Corn		12" Radishes fold by Beans
12" Lettuce fold by beans	24" Cabbage fold by Beans		30" Muskmelon	12" Beets
18" Beets fold by beans	24" Cauliflower fold by Beans	36" Cucumbers	30" Spinach	12" Beets fold by Cabbage
12" Beans fold by cabbage	24" Peppers	36" Tomatoes	12" Mustard	12" Beans fold by Cabbage
12" Beans fold by Beets	12"	12"	24" Summer Squash	12" Beans
18" Parsnips				24" Tomatoes
12"				12"
1	2	3	4	5

Combination 1—including onion, radish, lettuce, beets, beans, parsnips, and late cabbage—produced 2.8 cents per square foot or \$1,219.68 per acre.

Combination 2—including peas, beans, cabbage, cauliflower, and peppers—produced 1.4 cents per square foot or \$619.84 per acre.

Combination 3—including egg plant, sweet corn, cucumbers, and tomatoes—produced 1.8 cents per square foot, or \$784.08 per acre

12" Beans	12" Early Potatoes fold by Endive
12" Lettuce fold by Tomatoes	12" Endive
12" Beets	12" Early Potatoes fold by Endive
12" Radishes fold by Tomatoes	12" Endive
12" Beans	7
12"	

Combination 7—including potatoes, and late endive—produced 1.75 cents per square foot or \$762.30 per acre

Combination 4—including celery, muskmelon, spinach, mustard and summer squash—produced 3.5 cents per square foot or \$1,524.60 per acre

Combination 5—including radishes, beans, beets, turnips, cabbage, and tomatoes—produced 3.7 cents per square foot or \$1,611.72 per acre.

Combination 6—including beans, lettuce, radishes, beets, and tomatoes—produced 3.8 cents per square foot or \$1,655.28 per acre

for each combination of triplicate trials. Isn't this matter worth our serious consideration?

WHAT VEGETABLE COMBINATIONS TO GROW

I anticipate a few of the questions that will come to your mind; What shall I plant; What companion cropping shall I follow; how shall I plan my backyard?

The combinations of vegetables which can be worked out are almost unlimited. These combinations must be based on two conditions; first, the amount of ground available, and second, the taste of the individual. The profit cannot wholly determine the selection because it would be pure folly to grow the most profitable combinations, when a large percentage of the vegetables were distasteful to the grower.

The accompanying suggested groupings give

some idea as to how to plant, and these can be modified to suit individual cases.

These groupings are concrete facts from tests carried on in triplicate, the produce weighed, and sold at market prices, and all for small areas ranging from 10 feet square to 100 feet square. The crops cultivated by hand; planted close together, and intensive methods employed.

VOCATION VERSUS AVOCATION

Success in life is often determined by a man's avocation. That is, a large share of his pleasure comes in doing what he really likes to do and from which he gets his greatest enjoyment. Gardening on the home plot or on a vacant lot is truly an *avocation*. Truck farming is a vocation requiring all of one's time, and is the profession by which the grower makes

his living while home gardening is a profitable recreation. In other words *the products of the home garden represent the labor income of otherwise lost time*. The gardens can be made and cared for during mornings and evenings. They furnish healthful exercise and produce profitable incomes. There can be no shortage of labor because every owner is his own laborer, and every owner is the consumer. Isn't it a pleasure (to say nothing of the profit) when you can harvest three bushels of fine, first class potatoes from a small garden 15 by 20 feet? Think of what this would mean at the present price of the tubers! Can any of us afford to let this opportunity pass? *Can the whole people afford not to turn all door-yards into gardens this spring?* Become a producer and boost home consumption. You owe it to yourself, your neighbor, your country.

THE MONTH'S REMINDER

THE BUSIEST PLANTING SEASON—THE YEAR'S SUCCESS HANGS ON THIS MONTH'S ACTIVITIES

DON'T keep putting off April work because March weather continues to hang on after the first of the month.

Many things on the April programme can be attended to even in bad weather, and the worse the weather is, the more important it is to get these things done, because the bigger the rush will be when finally it does "break."

THE OPENING OF THE SPRING DRIVE

THE first big job is to get the ground plowed or spaded. Work up *all* your ground just as fast as you can get it done. As soon as the soil on your earliest patch of ground has begun to dry up on the surface, indicating that the frost is out, or nearly out of it, test with a crowbar, or a sharp stick. Each day's delay after the soil will crumble is a dead loss of valuable time. Light and well-drained soils will be ready to work as soon as the last inch or two of frost is "rotten" enough to break through easily. Each day's delay is taking a chance on a much longer delay, for the first few good days may be followed by a week or so of cold, rainy weather. A day's delay at the "psychological moment" may mean a week, or ten days' delay if you don't take advantage of it.

WHEN IS IT SAFE TO PLANT?

THE extra hardy things, such as beets, swiss chard, carrots, kale, kohlrabi, onions, smooth peas, radishes, salsify, spinach, and turnips, from seed; and cabbage plants may be sown or set out just as soon as the soil is dry enough to be worked. They will "come through" all right in spite of snow, and frosts severe enough to "crust" the surface of the soil, after they are planted. In making these extra early plantings however, be careful to have all plants *thoroughly hardened off*, and to plant seeds quite shallow and extra thick, as the percentage of germination will not be as high as it would be a couple of weeks later. Sweet peas, hardy perennials (from the nursery or transplanted) dormant Roses, small fruits, also can be put out as soon as possible.

These extra early things may be followed in a week or ten days with lettuce, beets, and cauliflower plants, lettuce, wrinkled peas, and early potatoes—the weather conditions being the determining factor.

BE PREPARED FOR YOUR NURSERY STOCK

TWO important factors in achieving success with new plantings of fruit trees, shrubs, ornamentals, small fruits, and other "nursery

stock" are (1) getting them planted as soon as they are received and (2) putting them into thoroughly prepared soil. Shrubs or small fruits that are to go into a border or bed should have the ground prepared by plowing or forking up *all* of it. For single specimens or isolated trees fork up and prepare a generous sized hole at least two feet in diameter, and better, four or five. The roots from a spring planted shrub or tree will spread through and fill up such a space by fall of the first year. A little well-rotted manure or compost, if available, will be good for working into the soil. But even if this is used, bone, preferably a mixture of both fine and very coarse, should be used in addition. Several handfuls distributed well through the soil will be none too much for each plant. Where the subsoil is hard, or water "stands" within two or three feet of the surface, the soil below that in which the plants will be set should be perforated or broken up in some way. If the subsoil is gravelly or sandy, it need not be touched.

WORK FOR UNPLEASANT DAYS

WHILE sowing and transplanting can decidedly be done to the best advantage when one is comfortable—there are other out-

door jobs that can be pushed on the disagreeable days. First of all clean up anything in the way of out-door work left over from last month. Look over last month's GARDEN MAGAZINE and check up the different jobs suggested. One thing frequently overlooked is the pruning of late summer flowering shrubs. Attend to it now, before the new growth, on which this summer's flowers will be borne, starts. Shrubs that have been allowed to go for several years without pruning, and are beginning to get "brushy" and overcrowded, will be improved by cleaning out the surplus old wood, cutting it clear back to the ground, and leaving room and light for the new growth to develop freely. Be careful not to merely "trim" such a plant, which will merely aggravate the trouble which it is sought to remedy. The "heading-back" of a shoot or branch stimulates the production of side growths below the point at which the cut is made. Most shrubs are far more beautiful when allowed to assume their natural habit of growth which they will do if they are *thinned* out instead of being *cut back*. Spring flowering shrubs had better not be touched now; wait till just after flowering.

KEEPING THE HARDY PERENNIALS HEALTHY

OFTTIME hardy plants which do finely for the first few years gradually "run out" without apparent cause. The most general cause for this condition is the overcrowding of the plants due to the production of new centres or "crowns" in the clump which the plant forms, and a gradual reduction of the plant food in the soil within reach of its roots. The remedy is simple. Any plants in this condition should be taken up now, as early as possible, and "divided" and replanted. Each clump or crown will give you several good small plants. Separate the old clump into parts with the aid of a transplanting fork and the hand, or a spading fork, rather than by a knife or sharp spade, as the natural lines of breakage or cleavage can be followed more closely. If the plants are to go back into the same position, manure and bonemeal should be dug into the soil before replanting. This treatment will take only a few minutes for each plant, and will restore its vigor and size of bloom for several years. Many perennials, such as phlox, which increase rapidly should be taken up and divided every two or three years; while others, such as peonies, will go for much longer periods.

SPARE THE ROSE BUSH AND SPOIL THE BLOOM

ANOTHER "first early" job for outdoors is the pruning of the hardy Roses. You can attend to the hybrid perpetuals (and to the rugosas if they were not trimmed last fall) at once. The teas and hybrid teas it is better to leave until the buds begin to swell, as the winter killed wood can then be more easily distinguished. Don't be afraid of severe pruning! To get the biggest and the best flowers, a plant should be cut back with what to the beginner would seem brutal ruthlessness—that is, cut out everything but from four to eight good-sized branches or canes, and cut these back to three to six buds. Another thing, which seems somewhat of a paradox to the beginner, is that weaker growing plants should be pruned back *more* severely than strong growers. For the most effective display in the garden, cut out the surplus and weaker branches, leaving about twice as many as you would to get the biggest flowers, and cut back those that are left from a third to a

half. In short, the more severe the pruning the better and bigger the flowers, but the fewer of them.

CLEANING UP WALKS AND DRIVES

AS SOON as the soil dries out enough to be firm and solid under foot, get at the trimming up of walks, roads, drives, etc. This is work that can be done a little at a time without serious disadvantage. Where the coal man has driven over the edge of your lawn, or some one has shaved a corner too close, and cut off a slice of sod, get busy just as new growth starts. Such damages can often be repaired with the back of spade. Where they

DO THIS MONTH

- ☛ *Plow, spade, or rake* all ground that is to be planted as soon as soil and weather permit. Get ground ready for setting out fruit trees, ornamentals and other nursery stock to be received.
- ☛ *Transplant, or divide*, hardy perennials, flower-roots, etc., requiring attention.
- ☛ *Top dress* all lawns and renovate where necessary.
- ☛ *Prune Roses and late flowering shrubs* only; do not touch others.
- ☛ *Trim up and edge* all walks, roads, beds, and borders.
- ☛ *Remove mulch* from bulbs, Rose beds, hardy border, etc.
- ☛ *Re-pot* seedlings and cuttings to be used for setting out later; also young plants to be grown on for next fall and winter use.
- ☛ *Attend to any grafting or budding* as soon as weather conditions are favorable.

PLANT THIS MONTH

Roots, bulbs and tubers; Anemones, Gladioli, Irises, Incarvillea Delavayi, Montbretias, Ranunculus, Zephyranthes; also Cannas, Dahlias, and Tigridias, toward the end of the month after danger of frost.

Shrubs and Trees; nursery stock, including deciduous shrubs and evergreens, as early as possible.

Fruits; all the orchard fruits, apple, pear, peach, cherry, plum, and quince; and the small fruits—currants, gooseberries, raspberries, blackberries, etc., and strawberries, the earlier the better.

Vegetables Under Glass; for forcing: pole beans, cucumbers, melons, summer squash, sweet corn, from seed: tomatoes, peppers, egg plants, cucumbers, and melons from pots.

For transplanting outside: pole and lima beans, sweet corn, cucumbers, gourds, okra, pumpkins, squash, summer and winter.

Vegetables Outdoors; seed: beets, carrots, corn, (extra early), kohlrabi, leeks, lettuce, onions, parsley, parsnips, peas, potatoes, radish, salsify, swiss chard, spinach, and turnips.

Seeds for plants to transplant later: asparagus, brussel sprouts, cabbage, cauliflower, celery, leeks, lettuce, cos lettuce.

Plants from frames, and roots: asparagus, beets, cabbage, cauliflower, horse radish, kale, lettuce, onions, onion sets, sprouted potatoes, rhubarb.

Flowers Outside; from seed: Asters, Candytuft, Carnations, Celosia, Centaurea, Eschscholtzia, annual Hollyhocks, Marigolds, Morning Glories, Nasturtiums, annual Poppies, Sweet Peas, Sweet William, and others of the hardy perennials or biennials.

Growing plants from frames or florist: Ageratum, Asters, Sweet Alyssum, Antirrhinums, Bellis perennis, Dianthus, Forget-Me-Not, Pansies, Paris Daisies, Petunias, Stocks, Verbenas, and other hardy perennials and biennials (These may also be started from seed in the open).

Hardy Perennials: from the nurseryman; Aquilegia, Anemone, hardy Asters, hardy Chrysanthemums, Delphiniums, Iris, Peony, etc., etc.

are too severe for that, cut out the damaged part to a clean edge and fit in pieces of turf, being sure to tamp them down *very firmly*. Ruts and hollows can be evened up by filling in with a mixture of half good garden soil and half humus, and seeding on the top. If you have much edging to do, by all means get an edging tool. This costs but a few dollars; it is made on the principle of a wheel hoe. If you haven't enough work of this kind to get one of these, there is a little hand tool, somewhat like a scuffle hoe but with one edge turned up vertically, which does very quick, neat work. While the eye must be trusted

to ascertain extent in trimming and edging, it is better to assist it with a line.

REMOVE THE WINTER OVERCOAT BY DEGREES

IN TAKING off the mulch from the bulb bed, hardy border, rose bed, etc., don't be in too much of a hurry to get busy at the first sign of spring, but be still more careful to avoid leaving it on until the plants have started beneath the mulch; when removing it exposes the tender growth to late frosts. It is better to take off only from a half to a third at first, and remove the rest one to two weeks later. Save the old mulch for summer mulching, or for the compost heap. Where manure has been used, do not pick it up too clean, but dig into the soil the small fragments that remain, using a wide tined fork.

KEEP ONE EYE ON THE GREENHOUSE AND FRAMES

WHILE the work of repotting and shifting the young plants, cuttings, and seedlings, which have been started during the last two or three months, may be done on rainy days, it should not be left for a rainy day after they need attention. A few days' neglect may mean serious damage. Young plants that have been potted up into two or three inch pots, and even plants that need transplanting, can be held back a while, if you are too rushed to attend to them, by withholding water to some extent, and also by shifting them, and giving them more room. With small pots, for instance, that were placed "edge to edge" you can take out every other row, thus preventing the tops from crowding and getting weak and spindly. Even flats of plants which are moved so that there will be two or three inches between them each way, may be "held" for several days. The shifting gives the growth a temporary check, and the added space and air will brace them up very perceptibly.

ARE YOU GRAFTING?

FRUIT trees (apple, pear, peach, plum, or cherry) which, though healthy, do not bear, or bear fruit which is not satisfactory in flavor, may as well be worked over to better quality. The cost is next to nothing, and even if you have not attempted this kind of work before, if you will study directions, and follow them carefully, at least a part of your attempts should be successful. If your place is so small that you have room for only a few trees, there is no reason why you should not have several varieties of fruit on each. This work should be done before growth starts. If you don't care to try it yourself, get some local gardener to do it, and by helping him you can learn more in fifteen minutes than you can in half a day's reading.

DON'T SACRIFICE YOUR PLANTS

REMEMBER that everything you are going to set outdoors, from a cabbage to a Coleus, should be well hardened off before you shift it from the frame to the garden. This is of the greatest importance, even where you do not have to anticipate trouble from late frosts, or expect to use plant protectors. They should be given full air day and night for several days—better a week—before being put in the open. This hardening off, of course, must be done gradually. Plants taken from the greenhouse and put in the frames will get almost as much of a shock as in being changed from the frames to the field. Keep them rather close for a day or two, but give more and more air as rapidly as they seem to be able to stand it, until you can leave them fully exposed.

Much Ado About Planting

K. B. BURTON and JESSICA McMURRAY
Ohio

PRACTICAL OBSERVATIONS THROUGH EXPERIENCE WITH POPULAR HARDY PERENNIALS—PLANTING FOR SIMPLE COLOR HARMONY

WHAT a pity that nature has been so shockingly unsystematic in her distribution of soil. One place is a yellow sand bank, where all the fertilizer filters through and disappears, while the next a few hundred yards away, is solid clay that must be blasted to stir it at all. Where, oh where, is that rich loam spoken of in every garden book as the only basis for raising anything? The single advantage of the present arrangement is that after gazing at one's own failures on sand one can walk over and see what the neighbors were unable to achieve on clay, and that is indeed cold comfort.

As time and gardening interest march onward, people come to realize more and more that a dominant note in color, or at most two harmonious ones, produce a better effect than running a chromatic scale of shades. Probably nothing as satisfactory as blue and white has so far been evolved, for cool restfulness when the pure blues and clear whites are selected. The following combination has been tried and not found wanting.

BLUE	FLOWERING IN
<i>Anchusa italica</i> Dropmore	June
<i>Anchusa italica</i> Opal	June
<i>Anchusa</i> (annual)	July till frost
<i>Delphinium</i> , especially <i>Belladonna</i>	June and August
<i>Myosotis dissitiflora</i> (biennial)	April
<i>Myosotis semperflorens</i> (perennial)	End of May till frost
<i>Plumbago</i> <i>Larpentae</i>	All summer and fall
<i>Salvia azurea</i> (perennial)	August and September
<i>Salvia Pitcheri</i> (perennial)	September and October

There are several other lovely blues, but they are not hardy in this climate, notably the blue *Hydrangea* and *Plumbago capensis*. All blues with lavender tones have been eliminated.



The patterned flag terrace in this scene adds a decided charm to the garden lines

WHITE	FLOWERING IN
<i>Anemone japonica</i> Geante	
Blanche	Late August till frost
<i>Campanula persicifolia</i>	
alba	June and July
<i>Empress Candytuft</i> (annual)	Blooms all summer
<i>English Iris</i>	Late June
<i>Funkia subcordata</i>	August and September
<i>Japanese Iris</i>	Late June
<i>Lilium candidum</i>	Late June
<i>Lilium speciosum album</i>	August

If by chance you inject a clump of pale lavender *Japanese Iris* into your scheme, the mistake is too fascinating to be regretted.

The *Delphinium* flowers in June, in August and practically the rest of the time also. It is a wonderfully energetic performer. The annual *Anchusa* is easily raised from seed, and when the perennial variety is over, this one has formed large plants and blooms freely until frost. The biennial *Myosotis* comes in April, and its place is filled late in May by the perennial *semperflorens*, which lasts through the season if it is kept picked.

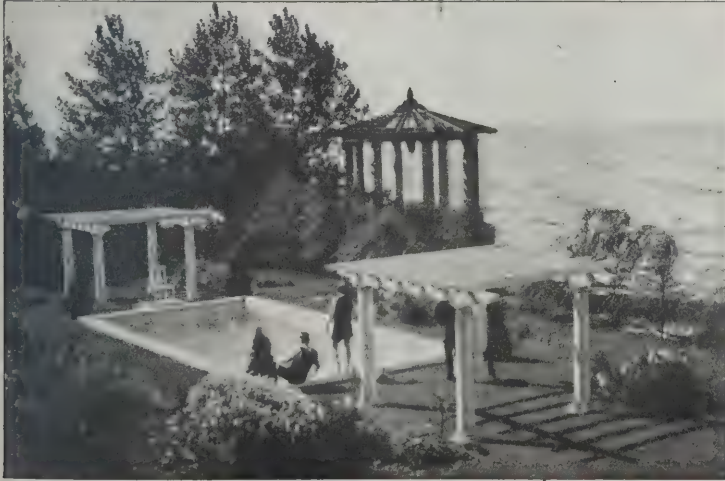
The photograph of the swimming pool shows Mrs. McMurray's blue and white garden which is in front of the house, at the foot of a high terrace, and from it again the bank is terraced down to Lake Erie. The white pool, painted

blue on the inside, and the two white pergolas carry out the colors of the flowers, while the evergreens at the corners and the grassy slopes form a restful contrast.

On the other side of the house, in the photograph showing the flagged terrace, a long narrow lawn leads to a studio and a second garden, screened from the house by evergreen, shrubbery and tall trees. In this portion of the place, a white dove-cote, a drinking pool and the white doves themselves bear a definite share in the color arrangement already mentioned. A concrete wall shuts out the street, and from the seat under the pergola it is

pleasant to sit at ease and view the beauties of the domain. After the *Anchusa* has finished blooming, scatter the seed over moist sand and they will germinate quickly. Some dead stalks were left lying on a little beach of lake sand and presently a nursery of seedlings appeared. *Delphinium* and *Columbine* seed scattered under shrubs give a fine yield, as do the *Michaelmas daisy* seeds.

At the end of their second year, one finds the *Peach-leaved Bellflower*, *Campanula persicifolia* to have formed numerous heads. If these heads are separated in July and planted in a semi-shaded position they will grow well and bloom the following season. Often as many as a dozen or fifteen can be produced from a single plant. When *Foxgloves* are about over, they usually put out three or four branches. Cut these with a sharp knife, leaving a small portion of root with each one, plant, and you have multiplied your *Foxglove* by the number of its branches. These always come true to color, which is scarcely ever the case when they are raised from seed. In this way it is possible to duplicate one's favorite shades. Hardy *Coreopsis* is easily reproduced. At the joints of the branches is a cluster of leaves and two tiny rootlets, which if cut and placed in a semi-shaded position will form stocky plants.



Blue and white is the color scheme of the garden by the water side

Bridging the Gap from Winter to Spring. W.C. McCOLLOM

APRIL ACTIVITIES IN THE GREENHOUSE—GETTING FLOWERING PLANTS READY TO GO OUTSIDE—
PLANNING FOR FALL BLOOM

AT THIS season of the year the contents of the greenhouse are in a "transition" stage. Many plants have done their work and must be discarded or put aside to reestablish themselves for another year. Many plants that have been kept indoors during the winter will soon be taken from the greenhouse to the porch or the dwelling rooms. Yet the change of treatment must be done with care; Palms that are to be used around the grounds or as decorative plants in the house must not be suddenly changed from a high temperature and intensely moisture laden atmosphere to outdoor conditions. They must be "hardened off" by gradually reducing both watering at the roots and overhead spraying so as to check the growth, and at the same time establish a lower temperature by degrees. The change must be gradual or the plants will lose their color and turn yellow. By starting the change early in April there will be a sufficiently long tempering period before the plants are needed or indeed before it is safe to use them out of doors. At the same time watch things inside and don't let aphids and other pests get ahead. Spray with mild insecticides frequently as a preventive, for if done regularly you will not have to resort to fumigation very often. If a real fumigation is necessary hydrocyanic acid is by far the most effectual means. You can get the formula by writing to the Readers' Service Department of THE GARDEN MAGAZINE. In milder attacks some of the regularly offered tobacco preparations may be used. They are perfectly safe to handle, but not so powerful.

Don't neglect to "harden off" properly all plants that are to be taken to the gardens. If all such can be placed in one greenhouse it is rather an easy matter to gradually reduce the temperature until the plants are well hardened. If only a small quantity is to be handled, a cold frame will answer the purpose very well, and by the way, plant a good big supply of lettuce in the frames. It grows so easily at this time of the year that there is no reason why any one owning a few hot bed sash should not have quantities on hand.

TURNING OUT PLANTS THAT WERE FORCED

CLUMPS of perennials that have been forced in the greenhouse should be planted outdoors for it takes these plants a season or two to get back to normal. It is really preferable to use new stock every winter that has been grown on rapidly, the spent plants being used in the perennial borders.

Get ready out of doors as soon as possible, a border for growing on Paris Daisy, Bouvardia, Stevia, etc. It is as well to have this border near the greenhouse so the plants will not be neglected, and use plenty of manure and bone meal when getting the ground ready. It is a little early to set out these plants, but getting the border ready now will save a hurry-up job later.



Cut out weak wood on late fruit trees under glass, which must now be started into growth

CARNATIONS, ETC., FOR NEXT WINTER

IN THE latter part of the month Carnations can be planted out in the field; so prepare ahead by spading into the soil a liberal quantity of manure, also giving a coating of lime. Set the plants in rows about two feet apart so that a wheel cultivator can be used to keep the soil well worked. When setting out break the bottom of the ball of roots with your fingers so the roots will start to penetrate down right away. Then cultivate, spray with bordeaux mixture and pinch frequently. Don't neglect the plants during summer because next winter's success under glass depends upon the earlier treatment in the field.

If you want to keep up the quality of your Carnation flowers to the last, the plants should be shaded; some sort of roof trellis, that breaks the sun rays is preferable, and

such accessories can be attached to the greenhouse.

Also turn out the young Violet plants in a well-prepared border. Rich soil is important and the runners must be kept removed and all diseased leaves kept picked off. All spent bulbs that have been forced can be placed out of doors or knocked out and dried prior to planting them out. Roots of Spirea, Tulips, Narcissus and all the smaller bulbs can be used for outdoor planting, but not for forcing again.

ROSES AND CHRYSANTHEMUMS AND OTHER FLOWERS

NEW Rose plants must be ordered if you are to plant new stock and have not taken your own cuttings. Have all arrangements made so the young plants can be benched just as soon as they are received; but, before planting, give the rose house a thorough renovating. Clean out the benches and paint with hot lime, rake up under the benches, and if the house needs painting or repairing now is a good time to attend to it.

Keep right on propagating Chrysanthemums; put in quantities of the Single type as they are very useful for cutting. Don't neglect to pot up the cuttings as soon as they are rooted; and keep spraying them to prevent infestation with black fly. Antirrhinum, Primula, Cyclamen and other pot plants that are being grown along for forcing in the greenhouse should be removed to a frame out of doors; a good practice is to place about one inch of coarse cinders in the frame to place the pots on and some slat trellises will be required later to shade the plants.

Continue making cuttings of the best varieties of Dahlia. The young plants should be potted up just as soon as they are rooted, and not be allowed to become pot bound. Don't, under any circumstances, take a chance on planting out until after June 1st, as a cool spell will cause a severe set-back.

Canna roots should be potted up to get well rooted before they are planted out the latter part of May. The better developed the plants the quicker the desired bedding effect is had.

All summer-flowering bulbous plants such as Gloxinias, Begonias, Achimenes, etc., can now be fed freely with liquid manures, care always being exercised that the manure waters are not spilled on the foliage which is apt to burn.

This is the right time to start plantings of Asparagus, Smilax, etc., for cut green. These plants are rank growers, and of course, require good, rich soil. By planting in the greenhouse now, you will have good large well-established clumps that won't feel the effects of cutting later on.

PLANTS FOR THE WINDOW GARDEN

SUCH popular subjects as Geraniums, Fuchsias, Begonias, etc. for window cultivation must be started now. They can be carried along the summer in pots plunged out of doors and will be in excellent con-



Get busy sowing seeds in heat and transplant in time. The seedlings in the seed pan are right size to handle



Put hard wooded plants in a frame to rest up before planting out

dition to move into the dwelling house in fall.

WINDOW BOXES AND HANGING BASKETS

Start filling window boxes, hanging baskets, etc., using plenty of plants, especially of the trailers, and don't neglect to provide plenty of drainage in the bottom of the boxes. Keep in the greenhouse a while to get growth well started. One of the greatest factors to success in the greenhouse is a good compost heap. It really does not pay to be satisfied with "some soil" simply because it is easy to get. Take a spade, get a good turfy top sod, and stack it up using one load of manure to every three loads of topsoil and mix in about one shovelful of crushed bone to every twelve of compost. Stack it up well and round the top so the rains won't leach out the good qualities of the manure. This heap can be chopped and turned several times and will then be ready for use, if the soil is heavy and inclined to sour a little lime added will be beneficial.



Root Violet cuttings now and be careful to keep them clean and healthy

Perennials for Succession of Bloom ELIZABETH HERRICK

Massachusetts

PRESENT PLANTING IN THE HARDY BORDER TO GIVE SUCCESSION OF FLOWERS WITH CHANGE OF COLOR EFFECTS

EVERY kind of garden has its problem of succession, and in the perennial border the question becomes acute. Many—in fact, most—annuals are practically mid-summer bloomers, while perennials seem to have each its month or two of flowering after which, unless the plant has some foliage beauty that commands attention, it assumes the shabby-genteel appearance of a human being who has seen better days.

To judge from magazine articles, and from gardens that I have visited, annuals (especially the quick-flowering sorts), are relied upon almost entirely to achieve the desired effect of continuous bloom. Yet annuals, howsoever beautiful, have always seemed to me, with their hint of transitoriness, out of place in the perennial garden, whose dominant note, as its chief charm, is permanence.

Yet I admit that many of the annual-filler combinations are very alluring. A lover of Poppies, I pounced with avidity on a gardener's suggestion that Shirley Poppy seed, scattered between clumps of Papaver orientalis, would give one a delightful Poppy plantation for summer flowering. The Shirley seed was duly scattered over a considerable space between forty large clumps of the Perennial Poppies. But, alack and alas! the spring rains beat down the heavy frondlike foliage of the Orientals, and the little Shirleys, hundreds of them, drooped, yellowed and died. The survivors, a scant three dozen, were weak, sickly plants that made a very poor show in bloom for the desert place they were scheduled to make to blossom.

The trouble I experienced in obtaining summer bloom on the ground occupied by the Oriental Poppies turned me back to perennials. Surely, I thought, there must be plants hardy enough to outlive a New England winter, strong enough to obtain a living between the Poppy roots, and enterprising enough to push above the foliage before its heavy spread shuts off the sunlight. After due deliberation and much consulting of catalogues, I made choice of the white Phlox Mrs. Jenkyns, a strong,



When the Phlox is in full bloom during late June and July (compare with photographs on following page)

tall variety with immense flower-heads, for background planting, with the earlier Miss Lingard, also white, and the rather dwarf Frau Antoine Buchner, for fore-effect. With these Phloxes I alternated Platycodons and auratum Lilies. Very early spring bloom is provided in this colony by Emperor and Van Sion Narcissus and the lavender-blue Cashmere Primrose, followed by the Darwin Tulip Pride of Haarlem. A few groups of pale pink Chrysanthemums and lavender and white hardy Asters furnish fall flowers. This section of the garden, as at present planted, has thus seven distinct color-effects and periods of bloom with flowers practically from spring to frost:

- 1—Blue and yellow: Narcissus and Primroses.
- 2—Carmine-rose: Darwin Tulips.
- 3—Scarlet and white: Oriental Poppies. Japan Snowball in background.
- 4—Blue: Platycodons. Delphiniums in background.
- 5—Blue and white: Platycodons (last flowers) and Phloxes.
- 6—Lavender and white: Hardy Asters.
- 7—Pink: Hardy Chrysanthemums.

Another border that formerly gave me much

anxious thought is still in process of evolution. From pink and white Hollyhocks as a background for pink and white Shirley Poppies, it has become thickly inhabited by several different families of perennials all dwelling together in peace and amity.

- 1—Emperor and Empress Narcissus.
- 2—Late Tulip Yellow Gesneriana.
- 3—Delphiniums. Chrysanthemum maximum Princess Henry. Gladiolus Baron Hulo.
- 4—Hollyhocks, pink and white. Chrysanthemum maximum.
- 5—Delphiniums (second-flowering). Chrysanthemums.

A walk through the centre of one part of my garden is bordered on either side by a bed forty feet long by fifteen wide. In these beds the perennial planting is arranged for a succession that I have found one of my greatest garden satisfactions. The walk is edged each side with pink and white Pyrethrums (*Pyrethrum roseum hybridum grandiflorum*), so that in late spring and early summer one seems to walk through a flowering lane. This effect is very beautiful. After their period of flowering the Pyrethrums are cut back to within a few inches of the ground, their pretty foliage and symmetrically rounded form making them a pleasing summer edging plant. On the left of the walk, clumps of German Irises in lavender and pink (*Her Majesty*) are followed without a break by masses of pink Darwin Tulips. The Darwins are subsiding when the pink Oriental Poppies (var. *Masterpiece*) come into flower all along the line, the great silver-pink blooms lifting themselves gracefully and graciously above the lane of pink and white Pyrethrums that about the same time break into flower. A row of white, flesh, and pink Peonies afford background. The next effect is blue—all shades from purple to porcelain, with here and there masses of relieving white. Against a mass planting of English Delphiniums, fifty clumps of named Japanese Irises, in plum, purple, indigo, azure, and porcelain shades, unfurl their wonderful flags over the graceful foliage. Rose, pink, and white Hollyhocks, and rose, pink, and white Phloxes then take up the tale, with foreground planting of *Gladiolus America*

among the Irises. For later flowering I have used, with pleasing results, delicate shades of pink *Antirrhinum*, but the last two summers I have relied on successive plantings of *Gladiolus* and have been perhaps better satisfied, as *Gladiolus* and *Iris* foliage associate extremely well.

On the other side of the walk the planting is similar except that white Oriental Poppies were used instead of pink. Also the background is heavier, as this border and one fronting the lawn come together on the line. Flowering shrubs are set at intervals behind a double row of *Delphiniums*. Hollyhocks are at present omitted from the scheme of things, though I think I shall make space for them by curtailing the liberty of the *Bocconias*—one may have too much of even a good thing!

Another very pretty and satisfactory border that is planted for succession has an early spring show of *Cashmere Primroses* (var. *Rubin*), followed by *Baronne de la Tonnaye Tulips*. Clumps of Oriental Poppies, a clear and brilliant red several shades deeper than the scarlet of the type, give pleasing masses of color in May and early June. Oftentimes they are still flowering when the Siberian Irises and white *Heuchera convallaria* begin. The resultant effect is strikingly beautiful—and very patriotic! The glowing scarlet of the Poppies would be sorely missed on their passing were it not for the beautiful shading of blues which follow in *Delphinium Brunonianum*, *D. caucasicum*, *D. cashmerianum*, *Barlow's Delphinium*, and the taller English Hybrids in the background. Among and in front of the dwarfier Larkspurs are planted blue and white Peachbells (single and the new double varieties, *Campanula persicifolia gigantea Pfitzerii* and ditto *Moerheimii*), while the "Lily-of-the-valley" *Heucheras* before mentioned border the bed with their graceful sprays. Medium and late Phloxes in shades of pink and delicate salmon, with pink and salmon Hollyhocks carry on the bloom until the second flowering of the Larkspurs. A few clumps of late white Phloxes, followed by silver-pink *Chrysanthemums* end the season. A planting of Japanese *Anemones* (var. *Queen Charlotte* and *Whirlwind*), for late fall flowering added much to the autumnal charm of this border, but they withstood Massachusetts winters so badly that, after a few years of annual replanting, I regretfully resigned their effect.

A short border, twenty by six feet is planted as follows:

For May and early June bloom: Oriental Poppies, the type, with undergrowth of *Forget-me-nots*, the old *palustris* and the newer double *Forget-me-not* (which, by the way, is only semi-double), but of erect growth and

great beauty. In late June and during July: *Miss Lingard Phlox* and *Delphinium formosum grandiflorum*, supply color. These are succeeded in August by *Rose Loosestrife* and Phloxes of harmonious colors.

Curiously, the least satisfactory of my plantings for succession has been the one that has cost me the most in time, forethought, and, also, money.

Its spring effect, however, is very pleasant. Yellow and white *Primroses*; *Emperor*, *Mme. de Graaff*, and *Barri conspicuus Narcissus* are followed by *Tulips* in colonies of twenty-five (*White Lady*, *Baronne de la Tonnaye*, *Gretchen* and *Clara Butt*). These bloom with the *Bleeding-hearts* and *Spireas* scattered through the border. Under a group of trees *Poet's*

subsequent color effect of distinction. Some little tone is obtained by Phloxes in white and varying shades of rose and lavender, and a few Larkspurs have been interplanted with good effect.

In September the border takes heart of hope again for a brief space with the coming of the hardy *Asters*, *Aconites*, and *Golden Rod*. The Japanese Toad Lily thrives here, but it is an exceedingly late bloomer and not especially showy.

For two years I achieved a beautiful August effect by scattering *auratum* and *longiflorum* Lilies throughout the border, but the third years the bulbs deteriorated. Interplantings of the Dwarf Harebell, *Campanula punctata*, along the edge of the grass proved charming in

June and July and their season of bloom was prolonged by constant nipping of seed-pods. *Hemerocallis kwanso* does well here, also the pretty *Clematis Davidsoniana* and superb *Lilies*. Still, from August on, the bloom is so scattering that I cannot count the autumn arrangement as one of my garden successes. The border is, however, still in evolution, and I am hoping that it may eventually work out its own salvation.

One of the really pretty and showy plants that its autumn flowering can boast of is a new Hardy Aster *novae-angliae* var. *praecox rosea*. As its name would indicate, it is a clear brilliant rose, the ray florets very silky, like those of *Boltonias*. It is a tall, erect grower, each stalk branching luxuriantly at the top and breaking into a mass of brilliant bloom in September—October. It is by all odds the showiest Hardy Aster I have seen and I think if I only had enough of it my "bit of woodland" might be transformed by its magic into the fall border of my dreams. There is also a blue form of this Aster, itself very beautiful, but neither so sturdy nor so floriferous. The individual blossoms, while somewhat resembling those of the *Boltonia*, are much larger and,

especially in the rose-colored variety, show a distinct tendency to come semi-double.

The interplantings described are only a few of the many that may be happily worked out, affording constant change of garden aspect with only the initial labor and expense. "What," said a neighbor friend to me, one day, "is the magic of your garden. One day it is all pale yellows and blues, almost the next it has flushed rose."

One reads much of the "pink garden," the "blue garden," and the "white garden," but I think I should tire of a garden that was always one color, however beautiful. The owner of the perennial garden can, however, approximate the general effect of any one of these for a little space by carefully studied interplanting. And a most fascinating study it is.



The spring effect is dominated by the Daffodils and Tulips with Primroses. Later the Larkspurs succeed and they in turn give way to other perennials

Narcissus, *vitellina Tulips*, and the yellow and white fringed *Primroses* bloom together. Close by, *Darwin Tulips Dream* and *Mrs. Potter Palmer* group pleasingly with masses of purple and white *Sweet Rocket*, *Siberian Irises*, and a few tufts of *Arabis albidia*. *Rhododendrons* in white flesh and rose are grouped with rose and pink *Tulips* and *Die-lstras*. *Bluebells* and *Aquilegias* in many varieties follow throughout the border, which, for a few weeks afterward, is pleasantly pretty with masses here and there of rose-colored *Balm*, *Monarda didyma rosea*. But beauty truly reigns here during the supremacy of the *Foxgloves* which stray along the border's curves and are masses under the trees. With the *Foxgloves'* passing, the glory of the border declines. I have not been able to achieve any



The ideal is to set a house back far enough to enjoy privacy and a view in front and side yards. House and grounds look better if they are not all visible from the street and the return view of lawn and shrubbery is better than any street view

Planting for Privacy of the Home WILHELM MILLER

Landscape Architect

THE CHANGED ATTITUDE OF THE PEOPLE TOWARD THE PURPOSE OF A GARDEN—HOW THE TRANSITION HAS COME ABOUT

IT IS the automobile, I believe, that has done more than any other one thing to make privacy popular in America. Fifteen years ago the common idea of "solid comfort" was to sit in a rocking chair on the big front porch, where one could see everyone who passed by. That was all very well in the days before electric street cars and asphalt streets, when an occasional buggy came by on the fragrant and silent cedar blocks and father looked up from his paper now and then to greet a friend on the sidewalk. But times have changed. City thoroughfares now roar with traffic, and even on the residential streets home-owners commonly complain that the passing show is too much of a good thing. People flock to the suburbs and the country to escape it, and the old-fashioned open front porch, built for dress parade, has given way to the retired side or back porch which is screened and often used as a summer dining room.

It is too much to say that we as yet have a national passion for privacy as the English have, but the change in public opinion amounts almost to a revolution. Middle-aged people can remember that when they were young "privacy" and "snob-bishness" were considered by most persons to be the same thing. High walls and hedges were thought to be "exclusive" and "unamerican." Yet nowadays some of the most hospitable and friendly people in the world earnestly assert that privacy and de-

mocracy are entirely compatible, while some declare that in order to preserve decency, self respect, and the finer features of home life a certain amount of privacy out-of-doors is absolutely essential.

Until the end of time, I dare say, people will differ honestly as to whether a seven-foot wall is exclusive or not. I must confess that I have seen some walls that say very plainly "I want people to keep out unless they are invited" or "My owner is a very rich man, as you can tell by the amount of money spent upon me!"



One of the commonest mistakes is made by amateurs who wish to screen their side yards. They put tall shrubbery at the back line of the house, instead of the front. That arrangement exposes the side yard to the public gaze, while this protects it

But there are other seven-foot walls that seem to say "Those who live here are fond of peace and beauty, and they believe their friends will be doubly happy here because this garden spot is a bit retired from the world." Such people always managed to put a touch of friendliness into bricks and mortar and there is a smile of welcome at the gate. I know a few persons who frankly say they do not care what the public thinks. But most people who can afford to build brick walls care very much indeed what the public thinks. They do not wish to lose the good opinion of their town. And there is no reason why such a sacrifice need be made nowadays. We have tasteful architects who can build the right kind of walls. Or if a wall seems questionable the shrubbery border is safer, because it rises gradually and the town has time to adjust itself to the change in the social atmosphere.

The arguments for privacy seem to me all of one piece, but among the people who have actually enclosed their front yards there seem to be five worthy points of view, any one of which may be the original motive. Among these I do not include display or exclusiveness, as these seem less worthy.

First, then, is the point of view of the people who are sensitive to unsightly objects. They do not like to look out of parlor or living room and see poles, wires, vacant lots full of weeds or strewn with rubbish. They do not like to see the com-

monplace freight traffic of the streets, especially when groceries, coal, fish or laundry arrive at the same moment with the invited guest. The first thought is to be shielded from all this as much as city conditions will allow. Then, too, there is the dust nuisance from which many people still suffer in city and country, even in these days of swept streets and oiled roads. The high wall or hedge certainly stops a lot of dust from getting into lawn and house.

A second group of people consider the home a place of refuge from the city. Granting that the passing show may be a beautiful and interesting thing at times, they want a rest and change from it occasionally. Outside excitement is always there when one is in the mood for it. People of quiet taste like a peaceful garden in which they may recharge their batteries to do their work in the world.

A third group of people have the social instinct and naturally desire an outdoor living room. They like to take tea on the lawn or entertain friends in a garden. One cannot do these things properly in a yard that is open to the gaze of curious passersby.

A fourth group comprises those who have difficulties with the neighbors. Even if all the neighbors in the world had the neighborly spirit, there would still be good reason for high enclosures around front or back yards. One cannot let too many children have the run of one's place. Dogs are destructive to flowers and to fancy evergreens. Cats kill our song birds. The people next door or across the way may be frankly inquisitive or too watchful of our doings.

The woman's point of view also needs special attention. There are ladies who manage somehow to dig in the dirt without "looking like a fright," but I have never met one who would concede that she looked her best in working attire. One of the greatest blessings a woman can have is to work outdoors alone in her own garden. Indeed every member of the family ought to have that privilege. It is necessary for the good of the human race. Whether paterfamilias ought to go to church on Sunday morning or whether he may occasionally live that hour among his Tulips and Daffodils conscience must decide. But if a front yard is really private every member of the family may work, play, rest, or read there six days in the week or seven without annoy.



One individual specimen of any shrub, planted against a fence helps the feeling of privacy (Snowberry)

Hitherto there has been more talk about privacy for the back yard than for the front. This is natural for the common American attitude is expressed by the saying "Front yard public, back yard private." Moreover, we all know whole cities that seem to have no front yards at all. Yet it is surprising how many places there are in nearly every town whose only chance or best chance for privacy is in the front yard. I suppose that fifty feet square is about the minimum for working out a satisfactory outdoor living room, and in almost any town, big or little, a half hour's ride in an automobile will discover many front yards larger than that which are owned by people of moderate means. And this is true in spite of the wonderful growth of modern cities and the many influences that tend to make lots smaller and smaller.

Some of the most interesting living propositions of to-day are furnished by places laid out fifty to seventy years ago by the leading citizens of that day. Some of these have grand old houses that look like Greek temples, while those in the Victorian style can sometimes be modernized within and transformed into Colonial houses. These places generally have magnificent proportions and lovely old shade. Sometimes the trees are much too thick, and the yards are made gloomy by Norway Spruce. It makes all the difference in the world to let the light into these old places and open a cen-

tral lawn. Have you not been tempted by a vision of this sort in some quiet country town?

On the other hand many of the old places, like those on Euclid Avenue in Cleveland or Jefferson and Woodward avenues in Detroit, had retirement, but no real privacy, because the trees were high-branched and any one could see the whole yard at a glance. These places can have real privacy by putting in tall shrubbery near the sidewalk.

It is a pity that people do not always distinguish between real and imitation privacy. Many persons who build three-foot walls declare that they "want a little privacy," but any wall, hedge, or border that can be looked over gives no real privacy. If those who adopt half-way measures will search their hearts they may find that pride of ownership or love of display have unconsciously influenced the decision. It is the most natural thing in the world for the new owner of a piece of ground to wish to mark his boundaries, and this instinct accounts for many thousand Privet hedges that are trimmed to a height of four feet. But this is a stiff and artificial way to advertise one's ownership of real estate. A better aim is to blend one's home with the environment, and irregular boundary plantings are more natural than conventional hedges.

I hope every reader of this article will avoid the very common mistake of planting too near a sidewalk. Thousands of people have planted their Lilac or Privet hedges right next to the concrete, without thinking that tall shrubs commonly spread five or six feet on either side. The bushes soon overhang the walk and then there is trouble. People do not like to be crowded off the sidewalk even by wayward branches. And if the hedge is trimmed the effect is not good.

Of planting materials there is a bewildering variety. The selection and grouping of shrubs is a fine art. The tallest bushes are leggy and it is necessary to face these inside and out with medium or low-growing shrubs that arch over to meet the ground. In order to keep out cats and dogs it is well to use a good deal of Japanese Barberry. If this must be in a straight line it will look better next the side walk than on the lawn side. If a Barberry hedge is too artificial, it is possible to interweave groups of wild Roses and other prickly bushes throughout the border in such a way as to preserve a natural effect.



There is complete privacy here because the hedge is too tall to see over, but an irregular border of shrubs in variety would blend better with the landscape and would offer passers-by more color throughout the year



People ridicule "gingerbread houses" nowadays. They may admire the horticultural perfection of vines and hedge, but they cannot atone for bad architecture and landscape. The house is too near the street, and the hedge too low



The Mountain Laurel (*Kalmia*) is the most beautiful of evergreen shrubs that can be grown in Eastern North America, and the most satisfactory

Broad-leaved Evergreens for American Gardens*

E. H. WILSON Arnold Arboretum

WHAT CAN BE DONE TO RELIEVE THE WINTER BARENESS OF NORTHERN GARDENS—NATIVE PLANTS THAT ARE SPECIALLY WORTHY FOR GENERAL PLANTING—WHILE THE PLANTS OF THIS CLASS THAT CAN BE GROWN ARE COMPARATIVELY FEW, YET THE BEST OF THEM ARE NATIVES

THE gardens of New England present a marked contrast to those of Old England in that their habitants, save the Conifers and the Yews, are bare of leaves in the late autumn and throughout winter. There is a nakedness that emphasizes the dreariness of the winter season. We have so few hardy, broad-leaved evergreen shrubs, and no trees; whereas in Great Britain they have many and there is a greenness and freshness about their gardens at all seasons of the year. We cannot help envying them their good fortune in being able to grow out of doors, and with no trouble, a wealth of plants which are ever clothed in restful green. Climate alone is responsible and since this is beyond

human control, the garden lovers who live in the colder parts of eastern North America must bow to the inevitable. Tall-growing Broad-leaved Evergreens belong to the warm, temperate, and torrid parts of the earth and, with few exceptions, are not found in the cold, temperate, and arctic regions.

NEW THINGS UNLIKELY

The Rhododendrons, the noblest group of hardy broad-leaved flowering Evergreens, have been dealt with in an earlier article, and here we may review carefully the remaining field in order to find out just what is our position in the matter of hardy broad-leaved evergreen plants. The regions of the world where possible hardy types of these subjects grow have been pretty well ransacked and the chances of New England gardens securing any notable additions are remote. China, which has so bountifully supplied us with favorite flowers during the past hundred years and more, has contributed very little to our list of hardy broad-leaved Evergreens. North Japan has been fairly liberal and one or two have come to us from Europe, but the great majority are native of American soil. If the whole of this country were under consideration, it would be found that more such Evergreens can be grown out of doors here than in the whole of Europe. Indeed, this is true if the

Pacific Slope alone be considered, but such favored regions are outside of this purview.

In New England and southward to Washington, D. C., the case is very different and it is only after years of trial that gardeners learn just what plants can withstand the hot dry summers, and cold changeable winters characteristic of these parts of eastern North America. The Arnold Arboretum is the only



The Japanese Andromeda (*A. japonica*) has larger flowers and grows taller than the native *A. floribunda*, but is not so hardy



The fragrant pink flowers of the Garland Flower, *Daphne Cneorum*, produced all summer, have earned its popularity

place in this country where data on the comparative hardiness of woody plants, covering a long period of years, is to be found. For this reason, this article is based on the experiences of that institution. Here and there in gardens, even in the neighborhood of Boston, Mass., a plant thrives which is not hardy in the Arnold Arboretum. Nevertheless, this Arboretum is the safest guide for all desirous of growing hardy woody plants in the colder parts of the United States of America. Very probably some reader has in his (or her) garden some broad-leaved Evergreen not mentioned here and this should be a source of joy, for the list in its extreme limits is all too scant.

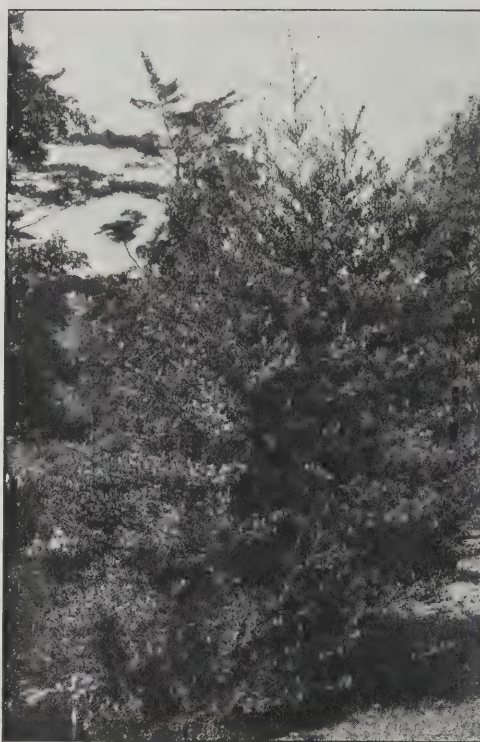
THE GLORY OF THE KALMIA

We who garden in the cooler parts of eastern North America may envy those of warmer climes their variety of broad-leaved Evergreens, yet in the native Mountain Laurel (*Kalmia latifolia*) we possess one plant that has no superior. The foliage is good at all seasons and in mid-June the broad, dome-like clusters of bowl-shaped flowers, either pure white, or silvery to deepest pink, make a wondrous picture. Truly the Mountain Laurel is in early summer the glory of woodland and hill slope, and is the most beautiful of evergreen shrubs native of eastern North America. Many Asiatic Rhododendrons have larger leaves and larger and more brilliantly colored flowers, but of all the broad-leaved evergreen plants which can be grown successfully in this climate, *Kalmia latifolia* is the handsomest and most satisfactory. There is a variety (*alba*) with pure white flowers and another (*rubra*) with deep pink, nearly red flowers and rather dark leaves. Between these extremes there are forms with flowers of all shades of pink and there is one (*fuscata*) with flowers conspicuously marked by a chocolate band. Another variety (*polypetala*) has the flowers segmented into narrow lobes, but this plant is not very ornamental. The variety *obtusata*, which rarely flowers, has broad, handsome, Rhododendron-like leaves. Lastly, there is a dwarf variety (*myrtifolia*) with small leaves and small clusters of minute flowers. All these varieties are sports from the wild type and have all been found on wild plants. By hybridization and selection it is highly probable that new and improved forms could be evolved. In the matter of soil and situation, the Mountain Laurel is not exacting, but it is fond of leaf mould and an autumnal mulch of leaves is beneficial. Like other members of the great Heather family, it detests limestone. This *Kalmia* is essentially a social plant and when massed together is most effective.

The two other *Kalmias* (*K. angustifolia* and



Pieris floribunda which opens its flowers at the first burst of spring. The buds are showy all winter



Japanese Holly (*Ilex crenata*) "being an exotic is fairly easy to obtain from nurserymen." Good for hedges or specimens

K. glauca) hardy in this climate are much less ornamental but are likewise evergreen. The former, familiarly known as the Sheep Laurel, is common in swampy places from Maine to Georgia and westward to Wisconsin. It is a



The Japanese Box, is hardier than the Common Box. Dwarf in habit with narrow wedge shaped leaves

branching shrub growing from a foot to a yard tall, and has dull olive-green leaves and clusters of crimson-pink flowers. It is popularly believed to be poisonous to sheep. The other species, known as the Pale Laurel has much the same distribution. It is a twiggy and smaller plant with flattened stems, narrow leaves with recurved edges and white on the under side and has terminal clusters of pale lilac to crimson-pink flowers. It is essentially a moisture-loving plant.

THE ANDROMEDAS

Closely related to the Pale Laurel and very similar in habit, foliage, and general appearance is *Andromeda polifolia*. This is a low shrub from one to two feet tall, with slender stems and small clusters of pinkish urn-shaped flowers and is distributed through the cold, temperate, and subarctic regions of the Northern Hemisphere.

Another very hardy member of the Heather family is *Pieris floribunda* (better known as *Andromeda floribunda*), which opens its small, white, Heather-like flowers at the first burst of spring. This plant is native of the higher slopes of the southern Appalachian Mountains and is a low, broad, round-topped bush with dark green shining leaves and short, erect clusters of flowers which are fully grown in the autumn and the flower buds are white and conspicuous through the winter. Its Japanese relative (*P. japonica*) grows taller and has larger flowers but, unfortunately, is much less hardy.

FOR SHADE OF TREES

For planting in the shade of trees and more especially by the side of woodland streams *Leucothoe catesbaei*, with yard-long, arching stems, glossy green, broad, pointed leaves, and axillary racemes of small, pure white flowers, is a charming plant. It is native of the mountains of Virginia and Georgia, but is very hardy. By the side of a babbling brook in the Hemlock grove of the Arnold Arboretum it is perfectly happy and a joy to behold at all seasons of the year.

NATIVE AND JAPAN HOLLIES

The American Holly (*Ilex opaca*), with its dull green leaves, is much inferior to the English Holly (*I. Aquifolium*), which has lustrous foliage, but it has the merit of being fairly hardy in northern Massachusetts, whereas its European relative is not. The American Holly is a large bush or small tree and has red fruit. It delights in a cool soil and a position sheltered from cutting winds and the morning sun in winter.

A broad-leaved Evergreen which should be planted in every garden is the Inkberry (*Ilex glabra*), one of the most attractive of native shrubs. It is densely branched and compact in habit and grows from five to eight feet high and as much in diameter, and has dark, glossy green, smooth, rounded leaves and black fruit on inch-long stalks. It forms a neat and shapely specimen in the open, is excellent for massing, and is a good hedge plant. The leaves do not burn and the plant grows well in ordinary garden soil and is beautiful at all seasons, be it midwinter or midsummer. One would reasonably suppose that so useful a shrub would be grown in quantity by the nurserymen of eastern North America, but, alas! this class from earliest generations has derived its inspiration entirely from Europe and apparently despises American plants as too common for attention.

The Japanese *Ilex crenata* is another valuable evergreen Holly and being an exotic is fairly easy to obtain from nurserymen. It



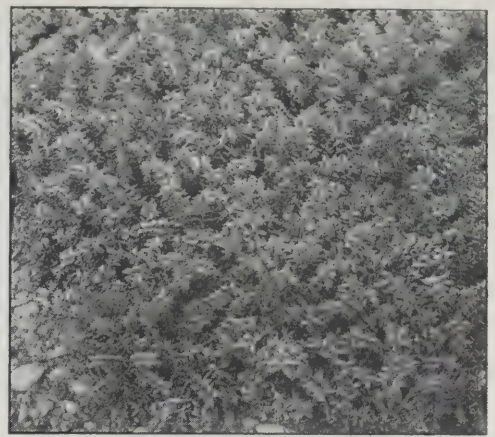
Inkberry (*Ilex glabra*) one of the most attractive of all evergreen shrubs, growing well in ordinary soils



The native Bearberry (*Arctostaphylos uva-ursi*) is a wide spreading ground cover that thrives in full exposure



The creeping Evonymus (*E. radicans*, var. *vegetus*) is invaluable for covering walls with north and west exposures

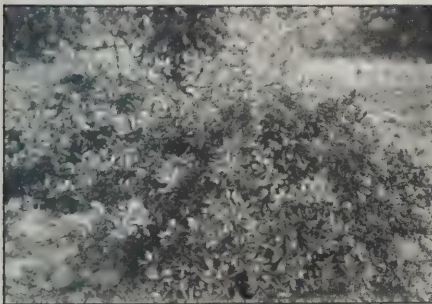


Another native that makes an ideal ground cover is *Pachystima Canbyi* with dense, small, light green foliage

makes a stiff bush with its short, dense branches and is handsome as a specimen and is well adapted for making hedges. The leaves are small, blackish green and the fruit is black and is freely produced. There are two or three forms of this Holly and if plants are raised from seed much variation in size of leaf is shown. Those with the smallest leaves are hardiest and seldom burn in winter, whereas the form known as *major* has not proved hardy in the Arnold Arboretum. This shrub, or small tree, is widely spread in Japan and is also much grown in Japanese gardens where it is usually clipped and trained into the grotesque.

ONE BOX THAT IS HARDY

The Common Box of Europe (*Buxus sempervirens*) is scarcely hardy in New England and as a rule browns badly in March and looks unsightly in the spring. There are many forms of this Box, and the hardiest is *myrtifolia*, with dull green leaves which are longer than they are broad. As a low edging around formal beds the Common Box winters fairly well when the snowfall is normal or in excess of normal, but if exposed to full sun in March the leaves scald. A much superior plant for northern gardens is the Japanese Box (*B. microphylla*) and its taller growing variety *japonica*, both being perfectly hardy in the Arnold Arboretum. The type is dwarf in habit and has narrow, wedge-shaped leaves and is very useful for edging purposes and for rockeries. The variety has rounded leaves, yellowish green in color and makes a compact bush in size comparable with its European relative. Both flower in early spring and are freely visited by bees. The Japanese Box, which is distinguished from the Common Box by the relatively long stalk to the rudimentary ovary of the male flowers, is far from being well known.



A new Evergreen Barberry (*Berberis verruculosa*) from China that has withstood full winter exposure in Boston

It is rare in nurseries where forms of the less hardy *B. sempervirens* erroneously and unintentionally pass muster for it.

MAHONIAS AND BARBERRIES

The lovely Oregon Grape (*Mahonia Aquifolium*), with its lustrous, metallic green leaves which in late fall assume rich shades of bronzy



The Heathers and Heaths grow quite easily in New England if given full exposure to sun and air. Photographed in Arnold Arboretum

green and blackish crimson is, unfortunately, not properly hardy here. In winters, when the snowfall is heavy and lies on the ground until spring, this shrub winters fairly well; but usually the leaves burn badly and though the stems are not often killed the plants are very unsightly until new leaves develop. Much harder and entirely satisfactory is its relative *M. repens*, with similar terminal clus-



Leucothoe Catesbaei with yard-long arching stems is a handsome undergrowth plant

ters of yellow flowers and bloomy black fruits but gray-green leaves. This species grows about a foot high and has a creeping rootstock from which shoots arise and form a broad, low thicket. Very beautiful and quite hardy is the new Chinese *Berberis verruculosa*, with prostrate and arching stems, small, prickly Holly-like leaves, dark shining green above and white below. It grows from one to two feet high, is very densely branched and has yellow flowers in the axils of the leaves and these are followed by bloomy black fruit.

SHOWY AND FRAGRANT FLOWERS

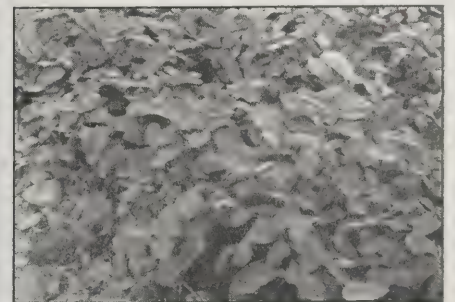
Very handsome in flower and striking at all seasons are the Yuccas with their spear-like evergreen leaves. Three species (*Y. flaccida*, *Y. filamentosa* and *Y. glauca*) are hardy in the neighborhood of Boston, Mass., and thrive in ordinary garden soil. Their pure white, nodding, top-shaped flowers are borne in profusion on erect, branching stems from four to six feet tall.

The Garland Flower (*Daphne Cneorum*) is a well-known evergreen with gray-green and terminal heads of fragrant pink blossoms. Many find it difficult to establish for it resents transplanting and for this reason pot-grown plants should be obtained in preference to those grown in open ground.

TRAILERS AND GROUND COVERS

For planting beneath trees there is nothing better than *Pachysandra terminalis*, a native of Japan and China. It grows about ten inches high and, spreading from a creeping rootstock, forms a dense ground cover in situations where but few plants will grow. The leaves are light green, and the inconspicuous flowers are followed by whitish fruits.

Another favorite broad-leaved Evergreen is the Lesser Periwinkle (*Vinca minor*), native of Europe and western



The Creeping Mahonia (*M. repens*) is much harder than its taller relative the Oregon grape. Grows about a foot high

Asia. This plant trails over the ground and forms a broad mass of glossy dark green. It thrives equally well in the open and in partial shade. There are forms with white and purple flowers but none is better than the type with its clear blue flowers.

A very pleasing little evergreen is *Pachystima Canbyi*, native of the mountains of North Carolina and Virginia, which forms neat little clumps six inches or more high. The foliage is dense, small, and rather shining pale green. The western *P. Myrsinites* is a taller plant with much larger leaves but the habit is less good and it often suffers in winter. These plants have inconspicuous flowers and are related to the Spindle-trees (*Evonymus*).

The Cowberry (*Vaccinium Vitis-idaea*) is a northern, circumpolar plant which grows a few inches high and forms dense, broad mats. The leaves are shining green, the flowers white or pinkish and the fruit dark red. At any season of the year this little plant is pleasing. A closely related evergreen is the Box Huckleberry (*Gaylussacia brachycera*), one of the rarest of American plants. It is a spreading plant growing from six to ten inches high and has shining green Box-like leaves.

The Mayflower or Trailing Arbutus (*Epigaea repens*) common on the borders of rocky woods and hillsides of New England and southward, is a lovely plant but alas! not very amenable under cultivation. Its sweet-scented white to delicate pink flowers open beside the remnants of snowdrifts in early spring. It is regrettable that this plant, a favorite with everybody, is so coy and hard to please in gardens. An allied plant, the Wintergreen or Checkerberry (*Gaultheria procumbens*), however, grows readily in any garden soil. This common shrub, so abundant in woodlands and wild places generally from Maine southward and west to Michigan, grows from three to six inches high and has lustrous dark green ovate leaves clustered on the top of a ruddy stem and tiny urn-shaped white flowers which are followed by pure red, hanging, aromatic fruits.

The Crowberry (*Empetrum nigrum*), abundant in cold, temperate, and sub-arctic regions throughout the Northern Hemisphere, has insignificant leaves, yet it forms neat mats of dark green in the vicinity of eternal ice and snow. Its relative, *Corema Conradii*, is a more conspicuous plant with broader leaves and forms compact clusters about six inches high.

GROUND COVER FOR OPEN PLACES

As a ground cover in the open there is nothing better than the Bearberry (*Arctostaphylos uva-ursi*), with its long trailing shoots and gray-green leaves forming a dense carpet. The flowers are white or pinkish, urn-shaped, and borne several together at the end of the lateral shoots; the fruit is globose and wine-red. Like many other members of the Heath family, the Bearberry is not only native of this country but is spread over the colder regions of the Northern Hemisphere. This prostrate evergreen can be used to good effect in many ways, but I never saw it more appropriately employed than in a private cemetery on Long Island, N. Y., where, in an opening in a thin wood, it carpets a basin or bowl round which nestle flat graves in clearings of the native vegetation.

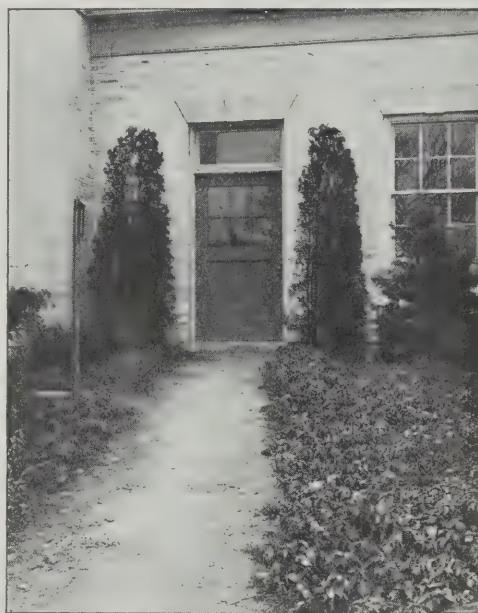
The Creeping Snowberry (*Chiogenes serpyllifolia*), with thread-like stems and white fruits is pretty on rocks and tree stumps in shady places. So, too, is the well-known

Partridgeberry (*Mitchella repens*), with a similar habit and scarlet fruits, though belonging to a widely different family.

HEATHER AND IVY

Twice previously in these pages reference has been made to the Heather (*Calluna vulgaris*) and certain Heaths (*Erica spp.*), but I may again emphasize the fact that these charming plants are perfectly hardy provided they be grown in the open where they may enjoy the full sun and wind.

For climbing plants with evergreen foliage we are badly off. The Ivy (*Hedera Helix*), so celebrated in poetry and folklore, is not hardy, although here and there rambling over an old tomb in a shady part of some cemetery, a plant may be found more or less indifferent to the winter's severity. No other plant can exactly take the place of the Ivy, but we are really fortunate in having so good a substitute as the Japanese *Evonymus radicans* and its variety *vegetus*. These are invaluable plants with good foliage, are quite hardy, and admirably adapted for covering walls and the north and west sides of buildings. On



Mountain Spurge (*Pachysandra terminalis*) is indeed an all around ground cover growing both in the open and in shade

boulders or even in the open border they form a fine tangled mass of green. They are root climbers and have small white flowers in clusters and attractive white fruits which open and display the seeds with their orange-scarlet covering. The juvenile stage of the variety *vegetus* is sold under the name of *Evonymus radicans*, var. *minimus* and also as *Evonymus kewensis*. It has prostrate stems and prettily marbled rounded foliage and is a charming cover and rock plant. In China grows *E. radicans*, var. *acutus* and the baby stage of this plant has ovate, marbled leaves and from the manner of its growth in the Arnold Arboretum promises to be a very useful addition to the best of evergreen climbers.

ONE HARDY EVERGREEN VINE

The only hardy and really evergreen twining vine we have is *Lonicera Henryi*, a recent addition from China. Over walls and rocks this plant makes a delightful tangle and, whilst the flowers are not showy and the fruit is dull black, the leaves are of good size and dark green throughout the winter.

There are a few other broad-leaved Evergreens whose hardiness in New England is not yet fully established and a number of the low-growing plants mentioned here are better suited for the rockery than for the open border.

Lawns: Cutting Old and Seeding New

WHEN cutting the lawns use a sharp mowing machine. A poor "mower" pulls out the young grass roots and all, instead of cutting it. Never let the grass grow more than one inch high. Regular cutting stimulates root action. Roll the lawn after cutting—it pays to do it at least once a week, but only when the surface is moderately moist. Never roll, when surface is wet, especially on clay soil.

Always use a grass catcher or rake off clippings carefully with a lawn rake. Grass cuttings scattered over the lawn are apt to mildew. This, in turn, is apt to cause acidity in the soil. Where grass is cut twice a week, it may be left to "fly" during July and August. But always catch your clippings, when crab grass is in sight, since no amount of raking the clippings will remove the crab grass seeds which are bound to drop.

To keep the lawns in perfect condition during the dry spells of summer, judicious watering is essential. Always remember that one good soaking is preferable to frequent sprinkling. The latter tends to bring the roots to the surface—to the detriment of the life of the lawn. Constant sprinkling weakens the young grass, all watering done after sunset is twice as beneficial as that done during the day.

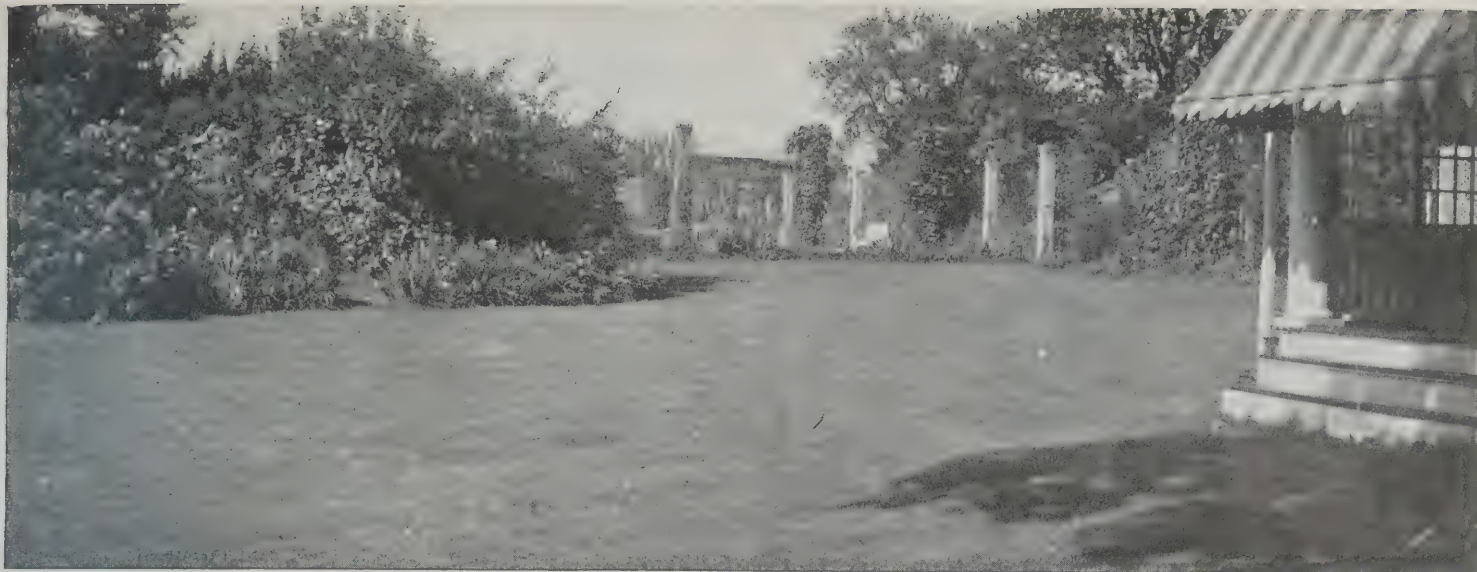
A FEW HINTS ABOUT SEEDING

Thick sowing of grass mixtures—especially those composed of fine-bladed grasses—is absolutely essential. The backbone of every good turf are the *Agrostis*, *Fescue* and *Poa* types. In order to thrive, their roots should mingle quickly. If they don't, they are apt to draw together in "areas," leaving small "pockets." A conservative suggestion is to use one pound of thoroughly recleaned seed to 200 square feet, or for larger areas, six to eight bushels per acre.

Here are a few mixtures that will be found particularly suitable for the purposes mentioned. It should be borne in mind, however, that no two soils are exactly alike, hence the need of selecting mixtures useful for your own specific needs.

FOR RENOVATING OLD LAWNS	FOR TURF TENNIS COURTS
30 % Kentucky Blue	40 % Chewings N. Z. Fescue
30 % Redtop, Fancy	30 % Rhode Island Bent
20 % Chewings N. Z. Fescue	30 % Red Top, Fancy
10 % Rhode Island Bent	
10 % Crested Dogstail	
FOR PUTTING GREENS	FOR POLO GROUNDS
45 % Rhode Island Bent	30 % Redtop, Fancy
40 % Creeping Bent	20 % Rhode Island Bent
15 % Redtop, Fancy	20 % Chewings N. Z. Fescue
	10 % Meadow Fescue
	10 % Kentucky Blue
	10 % Crested Dogstail

These are average mixtures. Seedsmen offer ready-made mixtures of grasses, each under a sort of proprietary name. The leading houses do not differ essentially from each other in these "standard" mixtures, which are generally satisfactory over a large territory. Special mixtures will be made up on request to suit special conditions or peculiar requirements, and for any very large undertaking or for unusual conditions it will often be best to consult a grass seed expert or lawn making specialist. For be it always remembered, a good lawn is the very foundation of a garden of delight.



Real Lawns Wherever Grass Will Grow

SUMMARIZING THE EXPERIENCES OF THE MOST SUCCESSFUL LAWN MAKING SPECIALISTS—PREPARATION OF THE SOIL, DRAINAGE, FERTILIZING, SEEDING, CUTTING AND WATERING

MOST lawns unfortunately, are built on top of the ground. In striving after immediate effects, we are all too apt to disregard the first principles of turf production—that of putting the soil in proper condition before sowing seeds. For unless the soil be prepared properly, a permanent lawn is impossible since the grass merely rests on the top soil instead of growing in it!

Nearly all soils will support one grass or another. Yet every grass will do better where some attention has been paid to the physical make-up of the soil.

To illustrate:—If you lime your surface excessively, you are favoring Kentucky Blue Grass and some of the more valuable grasses, such as the Fescues. On the other hand if a soil is neutral or inclined to be of an acid nature the *Agrostis* types of grass (Bents) will do best. Not that the *Agrostis* grasses will refuse to grow in a neutral or a limed soil, but results will not be such as where the soil is prepared to suit the grasses in the first place.

When planning a new lawn, the first step is to dig into the soil, to the full depth of a spade, lifting out as solid a "chunk" as will hold together on the spade, and study the make-up of the various "layers."

Rarely is there more than six inches of "top soil"—the soil that forms the real basis of the lawn. Quite frequently, especially near the house, the soil consists of that stiff, yellow clay which came out of the cellar excavation, and a series of tests will often disclose a wide variation in the immediate vicinity of the house. You are also apt to find quantities of lime, plaster, lumps of cement, broken bricks, etc., all of which have to be removed before a lawn can be made.

PUTTING THE SOIL IN CONDITION

Since it is not practical to select as many kinds of grasses as you have varieties of soil, the logical thing is to put all the soil in such condition as will support a well-balanced mixture of grasses. This is not difficult. The quickest way is to dig over (or plow) the whole surface to be put to grass and then apply

specific remedies for specific needs. Let us start with an area in which heavy, yellow or other clay predominates. That kind of soil needs four things above all else—drainage, lime, humus, and available plant food.

If economy is a factor and you have patience to wait a clay soil can be handled thus:

Dig or plow as soon as possible in spring and scatter coal ashes or fine cinders or sand broadcast. These are as good material as can be had to make unwieldy soils more friable. Don't simply bury them, but incorporate with the help of cultivator, disc or harrow. A strawberry cultivator is the best implement for this purpose, and man power is preferable to horsepower in pulling the cultivator, since it does not "pack" the soil as badly. Then scatter either well rotted manure, compost or commercial humus over the surface and work that into the soil. Again—don't dig it under, but work it in, perhaps with a fork, to a depth of four inches.

After repeated, light rolling of the land and cultivating it, sow Pacey's Rye grass this spring. This will quickly produce a good green lawn *but it is not permanent*. By fall, this Rye grass will have fulfilled its mission, having further mellowed the soil, and have given the manure or compost a chance to be-

come properly decomposed. It is now ready to be turned under, to enrich the soil with fibre and humus. Spade to a depth of about six inches, scatter air-slacked lime and bone-meal at the rate of ten pounds to every hundred square feet, and seed the ground to a well-balanced, permanent mixture.

MAKING ENTIRELY NEW TOP SOIL

On the other hand, assuming you are reluctant to wait a year there are two possible methods of procedure: sodding or making over the top soil.

Seldom indeed, can sod composed of desirable grasses be had; again, some seeds will have to be sown anyway, since hurriedly laid sod never "joins" perfectly the first year. Lastly, most sod is "hide-bound" and requires a great deal of "feeding" to become a self-sustaining lawn. It should be rolled often and spike perforating rollers must frequently be used to aerate the soil under the sod. Of course, there are exceptions. Good sod and sodding will save time and trouble on embankments, slopes and similar places where excessive rains may wash. As a general rule, a thorough preparation of the top soil and seeding is the most satisfactory course to pursue in the long run.

Clay soil itself is not an entirely undesirable basis for lawns, since it retains moisture well, but its stiff, tenacious nature must be broken by adding clean, sharp building sand and humus. On an area of 25 x 40 ft. Mr. Tucker finds the best results in general from this formula as used in his practice: 1 yard of building sand and 1 ton of fine granulated humus, with 100 pounds sheep manure and 50 pounds of a chemical fertilizer of about $3\frac{1}{2}:6:10:1$. (A yard of soil or sand equals 9 Canal barrow loads or a wagon load, 9 feet long, 3 feet wide, one foot deep).

Mix thoroughly, screen through $\frac{1}{2}$ -inch mesh and scatter broadcast, as evenly as possible, and roll twice with a lawn roller. Then rake or cultivate the surface and remove all stones. Let the surface lay in this condition for two or three days, then prepare your seed bed by tilling and dragging the surface to get it as even as possible. Sow the seeds in



Lime is an important factor in fitting most soils for grasses. Specialists use a lime spreader



Too much stress cannot be laid on the importance of preliminary preparation of the ground

two directions—first north to south, then east to west. Choose a still day and sow only when the ground is in fair gardening condition. After seeding, go over the soil both ways with a special disk-harrow or disk cultivator to get the seeds at least $\frac{1}{2}$ inch into the soil. Hand rake to even up, roll again, and you should get the kind of a lawn that you can be proud of.

UNDER DRAINAGE

Draining the subsoil must not be overlooked. No matter how well the top soil is prepared nor how well the grass may flourish at the start, if the subsoil lacks drainage, moisture will stagnate beneath the turf. Now, stagnant moisture either eliminates air space or poisons the air at the roots. Either result is disastrous, since young grass of the better and most desirable lawn kinds does not thrive under such conditions. Moreover, such soil condition encourages the growth of sorrel, an undesirable tenant in good lawns.

One way to secure proper drainage is to remove all the top soil to a depth of 6 inches and construct a cinder bed, two inches deep, of ordinary coal ashes, or power house or locomotive cinders. Or dig the soil to a depth of 10 inches, and incorporate the cinders into the lower stratum, or work the cinders lightly into the subsoil, then scatter a 2-inch layer of half rotted stable manure over this and replace the top soil. In extreme cases, tile may prove necessary. But since conditions differ so greatly, even on one and the same country estate, that phase of lawn construction becomes the work of specialists in that field.



Putting in a foundation of lime, loam etc., to support the fertile topsoil

WHEN YOUR GRASS LOOKS YELLOW AND SICK

The chances are there is just one thing wrong, viz: the soil is sour or getting so. Sour or acid soil is generally the result of either of two conditions: lack of drainage, or the top soil itself is such as to not admit sufficient air.

In addition, there is the possibility of perfectly good top soil, well drained, becoming full of acidity. Supposing you followed the advice of a specialist last fall and sowed Rye or Clovers. It was their mission to enrich their soil with nitrogen, while the green forage, turned under, would act as "green" manure. But if such herbage, turned under, is not given at least a month in which to decompose, the resulting fermentation will almost have the same effect on the top soil as lack of drainage—they will sour it and put it in decidedly unsanitary condition for any grasses, while sorrel, plantains, dandelions and other top rooted plants thrive. So, don't let weeds deceive you as to the condition of your soil.

The specific remedy for such cases is ground or shell lime which should be applied at the rate of 50 pounds to every 1000 square feet of lawn. An equal quantity of charcoal will likewise prove beneficial.

KEEPING LAWNS WELL

After a lawn or turf has been constructed on a proper foundation and is in flourishing condition, the price at which it may be maintained is constant vigilance. Occasionally spots develop in the best of lawns. To remedy defects due to causes other than acidity is largely a matter of properly "feeding" the grass by fertilizing and aerating the soil underneath it.

Prior to every fertilization, the sod should be opened up or perforated with either a perforating roller (where large areas require treatment), or a hand sod perforator may suffice where home-lawns of ordinary dimensions need attention. These tools are designed to break up surface cohesion. This is the term used by experts to describe "hide-bound" lawns which are generally the result of too much rolling when the ground is wet.

Lawn perforating encourages the grass roots



After seeding give a thorough rolling and "cross raking"

to spread and thicken the turf, besides aerating the soil. After spiking, humus, sheep manure or commercial fertilizer should be applied, to be followed by rolling with ordinary medium weight roller. Most standard "complete" lawn grass fertilizers contain $3\frac{1}{2}$ per cent. nitrogen, 6-10 per cent. phosphoric acid, 1 per cent.-2 per cent. potash.

An application of a fertilizer containing these elements will prove particularly effective before the rainy season of either spring or fall, the latter part of March or early April being generally considered the best time. Bone Meal gives sufficient lime and staying plant food to make frequent applications throughout the season highly beneficial. Humus will supply the vegetable matter or compost, so essential to lighten any soil and encourage healthy vegetation. Some "prepared" humus has chemical fertilizer added. Sheep manure is a concentrated form of organic matter suitable for liberal use. Add a "complete" fertilizer frequently, in small quantities, and the lawns cannot help but look well-cared for, well-fed, healthy and buoyant with life.

Occasionally spots develop that are beyond redemption so far as treating the soil beneath them is concerned. The most effective and economical remedy in such cases is to dig and remove the soil to a depth of 6 to 8 inches. Then cover base of the excavation with two inches of cinders, mix soil, manure, and sand to fill two additional inches and fill balance of spot with a top dressing like that previously described for new top soil. Roll lightly both ways, rake perfectly level, sow seeds and proceed as suggested previously.



Commercially prepared humus as used by lawn building specialists, to improve the topsoil

Planting Fruit Trees for Home Use S. FRASER New York

[EDITOR'S NOTE.—In last month's issue the fitness or otherwise of dwarf fruit trees was discussed from the home garden point of view; because the conditions will vary in different regions it was emphasized that no general rule could be laid down. Moreover it is not desirable to plant dwarf fruits unless they are to be given the attention they require; but inasmuch as the home garden is not a commercial orchard there are great opportunities for the dwarf fruit tree if only because it enables the gardener to indulge in a big variety on a comparatively small area. The reader is advised to consider the present article in the understanding of last month's contribution, which laid down certain basic facts.

W H E N
planting
dwarf
fruits the

average man has to adapt himself to a new scale of distances; and indeed this is quite important. Where apples are to be used on walls they will frequently need 18 to 20 feet of wall space, while pears on standard roots might be given as much as 30 feet, sour cherries on Mahaleb roots 15 feet, nectarines and peaches may be contained in 15 feet width, plums and apricots 20 feet. In some instances where figs are grown 15 to 18 feet are allowed; this with walls 12 feet high. If the walls are not so high a greater distance should be given. Thus, on a wall 6 feet high, a dwarf apple on Doucin stock may need 30 feet, cherries and pears up to 35 feet, some of the plums almost as much. Some varieties will stand more pruning back than others.

In planting the aim should be to set the trunk at least 9 inches from the wall so that it will not be in touch with it. In some instances trees which have already been trained and are five or six years old or more are secured and planted in order to furnish immediate returns, while the trees which are to permanently occupy the space are given more time to develop.

ADVANTAGES OF WIRES VS. WALLS

Espaliers on wires have the advantage over wall trees in that they can bear on both sides. The fruit can become very much better colored. The bush, small standard or pyramid trees when on Paradise root may be planted at 12 feet apart; when on Doucin root 20 feet would be better, but even this will be modified to some extent by the variety. A variety such as Winter Banana or Wagener which comes into bearing early and persists will not attain the same height nor spread as Tompkins King or Stayman or some other free-growing variety, and it is important that one become familiar with the habit of each variety before determining the distance to give it.

WHAT KIND OF STOCK

For the man who likes to grow fruit as a recreation, probably there is nothing which can furnish so much satisfaction as a selection of high class apples on the Paradise stock. In passing it may be mentioned that the Paradise stock, or as some call it, French Paradise, is the one which gives the most dwarfing effect of all; it is the only one to use for Cordons and small Espalier; while the Doucin, sometimes called the English or broad-leaved Paradise, is only semi-dwarf.



This dwarf apple, grafted on Doucin stock has been trained to form a table. Its trunk shows that it has acquired some age

The trees may attain a height of 20 feet when grown on this root. Of all forms the bush or small standard is the most easy to handle and perhaps the most satisfactory, although if one decides to plant on the property line probably nothing would make a more satisfactory hedge or division fence than a row of upright cordons. The upright cordon also lends itself to shaping so that it may be trained to constitute an arch, depending somewhat on the location.

Winter and summer pruning are usually given; as soon as the bulk of the shoots have made a growth of 7 or 8 leaves they are

pinched back with the exception of one or two which are allowed to continue the growth in the main direction, that is, in the horizontal they are continued horizontal, in the upright cordon the upper shoot is allowed to pass on upward. During the winter time these are shortened back to keep the tree in bounds and this is much more easily accomplished after the tree comes into bearing than before. As soon as the tree is well in bearing these leaders can be cut back to two or three buds and should growth still continue to be too rampant it is the custom in Europe to root-prune.

THE ART OF ROOT-PRUNING

A trench is dug three or four feet away from the tree and every root is cut off, perhaps half the tree is done at one time and half at another. This may be done any time between early winter and May. We have successfully root-pruned trees in June, but prefer to not do it later than this, our idea being that up to June all growth made is taken from food already stored in the trees the previous year; certainly the bulk of it is. From this time on the tree is busily engaged in the formation of fruit buds, and the storing of sap for the ensuing year and if its energies are largely centred in the production of fruit buds, little pruning should be given which would upset it. The root-pruning may be just as well done when the leaves drop in fall as in early spring and at the time of root-pruning a certain amount of heading back can then be accomplished. If the tree is growing too vigorously it may be root pruned on both sides. In the case of wall trees and where the wall runs into the ground to the extent of two feet all the roots will be found to be on one side of the wall. Occasionally a tree is found which has a deep-growing tap root and from our experience this is more common in Spy than in any other variety we grow. To keep a tree dwarf it is necessary to cut this. Apple trees on Paradise should be planted deep enough, yet not so deep that the trunk sends out roots. I have seen them planted 4 inches deeper than the bud with advantage, but in such cases it is necessary to examine them from time to time and make sure the trunk is not sending out roots.

There is a great tendency for small standard or bush trees on Paradise to blow over. The deep planting tends to assist them to remain upright. They are not as long lived as standard trees.

From time to time diseased and affected



Walls offer positive protection from cold. Thus in Western New York this apricot thrives on the wall of a house

branches will be found which will demand their removal. Such work can usually be done without injury and the tree rebuilt.

WHAT VARIETIES TO PLANT

Apples: From our experience thus far we have found the following list of varieties of apples to be very successful as dwarfs: Astrachan, Primate, Chenango, Oldenburg, Wealthy, Wagener, Spy, Bailey Sweet, Cox Orange, McIntosh, and we are informed that Fall Pippin, Williams Red, Mother, and Gravenstein are equally successful. It seems unwise to grow ordinary varieties in the garden, so that, while Bismarck is extremely beautiful, and grows very well as a dwarf, it is hardly worth the room; the same is true of Alexander, Twenty Ounce, Beitigheimer and probably several other varieties. Probably Baldwin, Sutton, Grimes, Winesap, and Yellow Transparent should be added to the list of desirables.

Pears are dwarfed by budding the variety on the quince root, but not all varieties unite well with the quince and it not infrequently happens that about the time the tree is 6 or 7 years old the top blows over. There is no reason, however, why we should not as time goes on select some dwarf-growing seedling pear roots and use these for the purpose of propagating some of these varieties which are indifferent growers on the quince root. Now it is necessary in order to grow them on the quince to double work, i. e. the trunk is of a variety which will unite with the quince, the top is the one desired. At the present time the varieties which are usually budded direct on the quince are Angouleme, Anjou, Bartlett, Seckel, Louise Bonne, Lawrence, and all of these lend themselves very well to training.

Among varieties which also are of value because they can be trained easily but which are difficult to bud direct on to quince may be mentioned Bosc, Nelis, Easter Buerre, Josephine, Comice, Diel.

Peaches and *Nectarines* are usually grown on plum stocks in order to dwarf them, and frequently they are budded on the Lombard



Pyramid trained dwarf apple tree which is an object of interest in the border and from which the owner can gather the crop as he wants

plum trunk in order to get the result. For growing under glass they are frequently top-worked 3 or 4 feet from the ground and the fan-shaped wall tree is the form which seems to find the most favor. If they are to be grown out-of-doors, there is no need for them to be budded so high on the trunk; they would be much better if they were but 6 inches from the ground. In regions where the winters are too severe for peaches to live without shelter the espalier may be laid down and covered for winter.

One thing to remember in pruning the Peach is that the fruit is borne on wood of the previous year's growth. Under certain conditions a certain amount of summer pruning is given. Any excess of branches which start are pinched back from time to time, and weak shoots which are apt to crowd are removed.

In the winter time another pruning is usually given which consists of the thinning out of the wood, the removal of old wood or any which is diseased and the rearrangement of the new. The peach will stand considerable pruning. It must not be allowed to become too thick.

The nectarine is also well worthy of consideration and when grown under glass is highly esteemed even in Western New York which is recognized as a fruit growing section.

PEACHES ON A HEAVY SOIL

Those having a very heavy soil and wishing to grow peaches may do so by having them on the plum stock. The plum root is much better adapted to the heavy land than is the peach.

Anybody attempting to grow dwarf plums should select the best of each class, for instance, among the Japanese, Red June, Abundance, and Burbank may be used, but they are apt to overgrow the stock and be short lived. They grow very rapidly so that it is probably best to use them as small standards rather than as wall or espalier trees.

Among the European varieties, those which are particularly desirable include Bavay, Reine Claude, Coe's Golden Drop, Bradshaw, Italian Prune, Shropshire Damson, French Damson, Grand Duke, Middleburg, Sannois, which are all valuable on account of their high quality. As at present grown in the

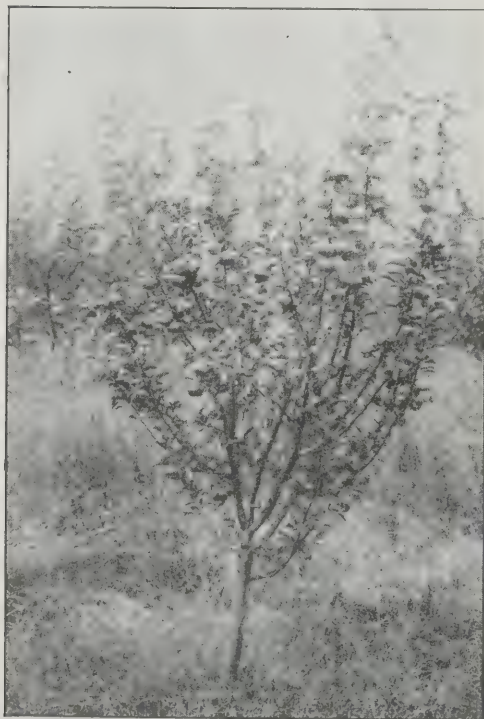
American nurseries, these are budded on Myrobalan stock. In order to dwarf them they might be budded upon the Sand Cherry. As a rule most of the European varieties form their fruit spurs on one and two year-old branches and in pruning care should be taken to give them ample light. They will stand considerable thinning. The best results are usually secured by growing them as standards rather than as espalier.

Dwarf Cherries are secured by budding them on the Mahaleb roots. Sour cherries unite much better with this root than the sweets, and since the Morello cherry, which is a very sour black cherry when ripe, is normally a dwarf grower, it is one of the best to use as a dwarf tree. The sweet cherries when budded on this stock are not nearly so successful as the sour. They are much more apt to die at the time they come into bearing than to live. Among good varieties of Sour Cherries are Richmond, Montmorency and Morello.

TREES IN POTS

All kinds of dwarf trees may be grown in pots. In this form they may be grown in the greenhouse and made to produce their fruit out of season. A 12-inch pot is adequate for a dwarf apple on Paradise roots and considerable interest may be aroused by the growing of figs in such, even in Northern New York. They will need some shelter during the winter months but may be plunged in the soil out-of-doors during the summer. The plants will need liberal feeding of commercial fertilizers during the growing season or moderate waterings of liquid manure may be given especially at the time the fruit is ripening.

While there does not seem very much opening for dwarf trees as a commercial proposition the time may come faster than we now think when the demand for the highest class of fruit will warrant their consideration, but for the large mass of suburbanites and for those who wish to have the pleasure of growing these handsome small trees they are a source of much enjoyment and undoubtedly can be made to be of profit.



Wagener apple on Doucin stock. Eight years from the bud and six years planted. Orchard in sod

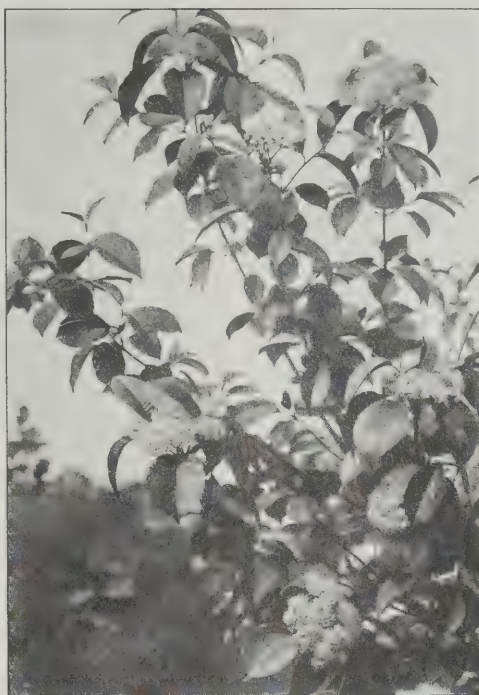


Wagener on Paradise stock; same age as the tree on the left and growing under like conditions. Height 5 ft.

Shrubs for Use and Ornament The Late E. P. POWELL

THE MOST SERVICEABLE HARDY SHRUBS THAT FIT AROUND THE HOME AND WHY THEY EXCEL—PLANT NOW FOR THIS YEAR'S EFFECTS

THE home maker who plans a garden should learn to understand the simplicity of shrubbery planting whether for ornament or for screen or shelter, and that the best hedges are made of the very commonest plants. The Osage Orange and Honey Locust (*Gleditschia*) are harsh affairs, and fast passing out of use for hedges. The Osage Orange has the advantage of being free from insects and the Honey Locust is nearly immune, except that the mice gnaw it badly about the roots. The *Pyracantha*, or Fire Thorn is able to resist cattle and is far better than either of the above plants near a house; the white-fruited variety is entirely hardy in New England and New York. It is hard to



Swamp Dogwood (*Cornus Amomum*) blooming in June and July is a strong growing shrub that will endure partial shade

charming, especially when it sifts the moonbeams through it. In the hedge form this foliage is very attractive and ornamental. I have had the Siberian Pea-tree recommended to me for hedge work; in South Africa, it is the chief hedge plant. With me in Western New York, the foliage is most beautiful while the plant is entirely hardy.

However, all in all, for a hedge plant where considerable strength and turning power is needed, there is nothing better than the Buckthorn, or Blackthorn. I have never seen one give up after it has been put in use, but I do not know where to find an Osage Orange hedge in the state of New York. The Buckthorn needs trimming about three times a year, and



For late summer bloom the Rose of Sharon, in its multitude of varieties, single and double, is a well liked favorite



For base or frontal planting of tall growing shrubs the white tassel Deutzia gracilis is excellent. Flowers very early

conceive of a hedge of this sort as looking badly from neglect. It grows easily from cuttings, and is so astonishingly thorny that neither fowl nor beast will touch it twice. In fact, there is nothing better than this Thorn around the suburban garden, or at the rear of a place likely to be invaded by boys.

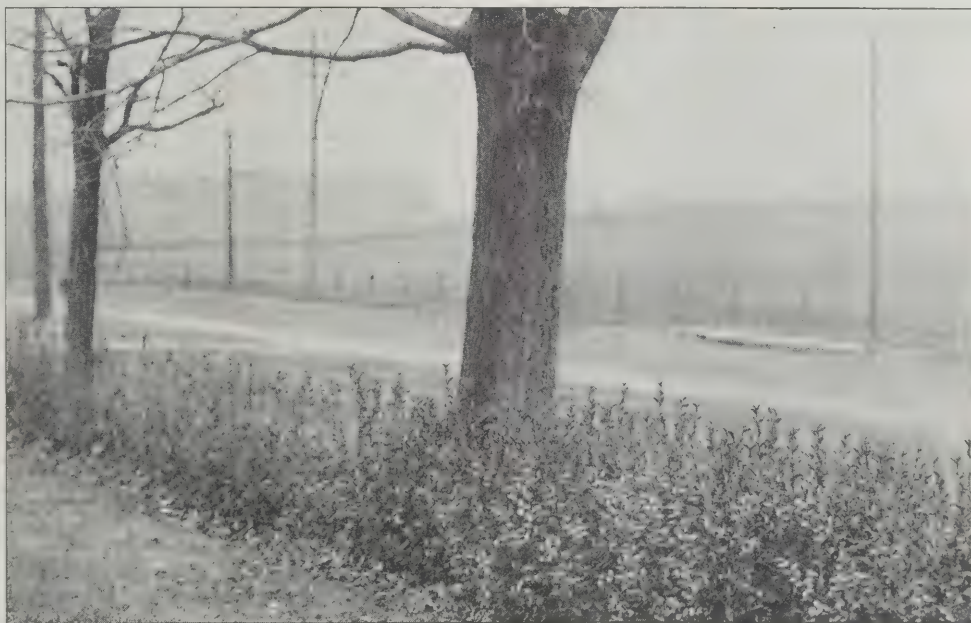
Dwarf pears and apples have been used for hedges. These if planted about three feet apart and not trimmed up at all will interlock their limbs impenetrably. They are very long lived, but, not necessarily very handsome and, of course, spraying will usually need yearly attention. The English Hawthorn does very well in Northern sections, when it is not attacked by woolly aphis, a pest that is

very destructive during dry seasons. Growing wild, this Thorn makes a very dense bush, and when we use it for a hedge the individuals should be planted far enough apart to let them develop their characteristics. The cross breds and sports of the Hawthorn are equally good, and some of them far more beautiful. The Paul's Double Scarlet is simply superb, whether grown as a hedge or as a single plant.

If you can find seed of the Thornless Honey Locust, you will get just as good a hedge plant as if you grew the Three-thorn variety. I have been able to get a single tree (now forty feet high) of this exquisite variety. There is not on it a single thorn, of any size. The foliage is

it can be cut very close without doing any mischief. I cut mine back one half or more about once in ten years. The mice never gnaw this plant, and nothing else attacks it, except the plum louse. This aphid breeds as freely on the Buckthorn as on the Plum, passing later in the season to the Hop yards. It is a good plan to mulch any of these hedges, especially where mice are dreaded, with coal ashes—from anthracite coal. This gritty stuff is a great bother to mice, and to any other gnawing creatures.

The Common Lilacs are frequently used, but to my fancy are not by any means as good as the Persian. The new French Lilacs, double and semi-double, can be set in close rows, about four or five feet



When planting a hedge pay attention to the soil and see to it that the situation is one where the plants have a chance to grow. Competition with big trees for light and food is not a favorable condition



Flowering shrubs planted on a division line and given room to grow hide fences and rails (Hybrid Lilacs used here)



American Fringe Tree, (rear) and Weigela (front) grown as single specimens illustrate the way to get the real beauty of flowering shrubs

apart, and will give a display unequalled during May and June, and after that are by no means unsightly. The white-flowering Common Lilac must not be planted with the other Common Lilac, for it grows twice as stout and twice as tall. The Tree Lilac could be made into a very stout hedge, but must be planted at least six or eight feet apart; this of course would only serve for ornament. The Persian Lilacs will require great width of room, not less than ten or twelve feet, for they hang over in dense masses of bloom during May. One effective arrangement is to place rocks in front of the shrubs, among which ferns are planted. There is considerable of the windbreak about these large plants, and that is no trifling object, even in the suburbs of town. Behind them can be grown some plants which are semi-hardy, such as many of the Hybrid Rhododendrons.

The Weigelas make good hedges, but the wood is brittle, and after awhile the roots rot, and need renewal. But planted with *Deutzia gracilis*, or some other low creeping shrub in front it is a useful shrub, and moreover it grows well in shade. The Hydrangeas have much to recommend them. The fairly new *H. arborescens*, *Hills of Snow*, that blossoms all summer, from the first of June, is better than the popular *H. paniculata grandiflora*. One more shrub of exceedingly good effect is the *Althea* or *Rose of Sharon* and here again the wood is brittle, and some sorts are not quite hardy, when young; they grow hardier as they grow older. If planting *Altheas* select those that have have about the same style of growth.

For exquisite color in the winter, a line of Red-barked Dogwood beats everything. In the summer this plant is not at all pretty or attractive, although it has a delicate white flower; but at the time when the foliage drops from deciduous trees, this plant changes its green bark to a deep rich crimson—a habit shown by almost all trees and plants, but in this case very conspicuously so. It is delightful to look at all winter. Its only rival is a long line of Barberries. The birds rarely touch the Barberry, at least not until Spring, so we have the beauty of the scarlet fruit all winter. Here again, however, we have to remember that the wood is brittle. I should prefer to set my plants six feet apart, and let them lean over and tangle up with each other.

The Purple Beech is fine as a single specimen and also makes splendid hedges, and so will any Beech if eaten off by cattle, or trimmed by man, until stubbed. The ordinary Purple Beech is not quite hardy but Rivers' (which is the best colored too) is frost proof. It is superb in leaf, equally beautiful in the autumn browning, and noble when it stands naked.

In the Southern States I use Privet very freely, and am inclined to recommend the Amoor River sort for general planting in the North. It blossoms when quite small, and is pretty when grown as an individual plant. We can also grow the Japan Evonymus in Florida, and the Cape Jessamine. Our Roses also are very effective, but they do not surpass a close row of *Camellia japonica*; and if one is to use a trellis, it would be difficult to conceive anything finer than a screen of Cherokee Rose, with the Camellias fronting it. The rugosa Roses are very attractive for their luxuriant foliage as well as their flowers, but the free-flowering Teas in the South are close rivals.

The best shrub of all, for lawn, garden, or hedge, I think is the Tartarian Honeysuckle, a bush growing eight or ten feet high, and never better than when allowed to take nearly its own way of growth. It is gloriously covered with bloom in May, after which you may use the shears somewhat. It is grand for a windbreak as well as a hedge, and it will break a line of snow drift thoroughly. If it is broken at any point it will soon fill up the gap of its own accord. Indeed, a hedge of this sort may be left for years untouched; and then you may use your shears as freely as you like.

There are few plants better fitted than the Japan Quince to make low growing hedges, and dividers between lawns. It forms an impenetrable hedge, is sufficiently thick and thorny, and it is gloriously beautiful in the flowering season.

I do not recommend any special treatment for hedges, farther than to give them good garden soil, and thorough mulching when planted. Use very little barnyard manure, unless such as has been thoroughly composted with other material.

A country home is beautiful very largely according to the taste displayed in planting. You can spoil as easily as you can ornament. It is important to know whether a screen is wanted, or a low growing flower-giving division line. I have even seen the trifoliate Orange planted for a lawn hedge close by

houses. It is a terrible plant, fit only to turn range cattle. To get rid of such a hedge after it has taken possession of the ground is a task few like to tackle.

The Art of Planting Trees and Shrubs

IT IS a critical time (as far as the welfare of the plants is concerned) when they reach the planter. With the roots wrapped and the tops all bundled up, dormant stock will endure a great deal of knocking around before it is unpacked; but as soon as the wrappings are taken off, conditions are changed. The unwrapping should be done in a sheltered, shady place for even gentle winds and sunshine can accomplish wonders in taking moisture from the roots. If the unpacking must be done in the open, dig a trench in the ground into which the roots can be laid so that a shovelful of soil can be thrown over them at once. This is "heeling-in." It may be well also to water them if they are to be left thus for any considerable time. Even when heeled in use burlap wrappings or other covers to protect the tops of the plants from exposure until planted.

When planting, be sure that the hole is sufficiently large. The effects of too small a hole will be marked in stunted growth, perhaps for years to come. Never put fresh manure in the ground; when planting use well rotted manure and do not let that come in actual contact with the roots. Before planting cut off, with a clean cut, any broken roots. It will be well also to reduce the top in some degree. Usually about one-third of the growth should be taken out or cut back. Remember the roots have suffered a shock in transplanting, so do not overtax their strength. Make the soil around newly set plants really firm, using a maul or tamper for large plants and tramping very firmly about smaller ones. Give a thorough watering—this helps to settle the soil and fill up any spaces. Finally mulch. This is really important. A mulch may consist of constantly stirred soil; but something should be done to conserve moisture, and the mulch should be retained in condition throughout the first year after planting. Newly planted evergreens should be protected from winds.

TUCKER'S TURF DATA

TIMELY HINTS TO LAWN MAKERS

How the European War affects American Lawns

South German Agrostis—the backbone of all putting green mixtures—is absolutely out of the market. So are the fine-leaved and Sheep Fescues. All these grasses form important parts in *Grass Mixtures of Quality*. Substitutes for different purposes must be used with discretion and a thorough knowledge of what they will and will not do. Chewing's N. Z. Fescue, for illustration, one of the few fescues available in any quantity, varies considerably in quality and quickly loses germination! Red Top, the best grass permissible to take the place of German Agrostis, varies so greatly in grade that great caution must be exercised when buying it. I am always ready to state the analytical purity and vitality as ascertained for me by the best laboratories in the country.



Let me prescribe

Specific Mixtures

for YOUR Needs

Over 100 Country Clubs, besides many private estates, bestow their patronage upon me year after year, with the perfect confidence of being served in 100 point fashion. I offer no "cure-all" for lawn ills! I rather investigate your specific lawn troubles and suggest remedies based on 20 years' experience. Write me to-day for "Interesting Data on Agrostology," also "Practical Illustrations on Turf Production." These two absolutely unique brochures are gladly mailed FREE to every reader of The Garden Magazine. Write to-day stating what interests you most.

Wm. Tucker

Right Now is The Time to Prepare for Beautiful Lawns

WELL-KEPT grounds and lawns relate to the home as a frame does to a picture. And the setting of many a pretty home is spoiled by lawns that fail to satisfy. Lawns of lasting beauty and utility are generally the result of deliberate study and careful work. To attempt the making of lawns without thorough study of the soils that are to support them, invites disappointments. As a lawn specialist, I offer to analyze your soil and make such recommendations as will guarantee you perfect lawns, no matter where you live.

First Aid to Your Turf

Perhaps the most urgent need of all lawns at this time is rolling, spiking and fertilizing. Tucker's Putting Green Roller makes as ideal a lawn roller as I know of. It leaves a cleaner, smoother surface than a wooden roller. Being built of 4 iron cylinder sections, it is practically everlasting. So well-aligned and so perfectly balanced that a boy can roll it with ease. Detailed description on request. Price \$23.00 f. o. b. New York. Weight 150 pounds.

Frequently rolled turf on clay soil is apt to become "hidebound." To remedy this condition I advise the use of a perforating roller, the spikes of which penetrate the sod and stimulate root action. Before every fertilization, the sod should be spiked open. My specially designed and improved Perforating Rollers for either hand or horse power will be found

to do the work effectively, easily and thoroughly. Tell me what lawn areas you have and I will send full details about the performing roller that will best serve your needs.

Everything for The Links

in any quantity but of *only one quality*—THE BEST—is available here at reasonable prices. Grass Seeds and supplies of every description have been the object of my special study for nearly a quarter century. As the result, hundreds of the leading country clubs and estates depend on me to supply them every year with all they need to keep lawn, links and turf in perfect condition.

Put your lawn problems up to me—I shall prescribe seeds and supplies best for your specific needs. Properly handled they are guaranteed to produce results you want.

You will enjoy reading these FREE Books

Why lawns don't thrive is fully explained in my prospectus "Practical Illustrations of Turf Production." Not a scientific treatise on soils and seeds, but plain statements how to secure perfect lawns at least expense. Fully illustrated with many views of my work. "Interesting Data on Agrostology" will tell you what is required to put lasting lawns around every home. Write for these free books TO-DAY

Lawn Items of Immediate Interest

Tucker's "Magnet" Fertilizer is of the highest guaranteed analysis. A specific help for thin turf on clay, sandy, gravelly or loamy clay soils. It will stimulate growth and improve the color of turf. Will green up any brown or burnt spot. Price \$24 per hundred, subject to market changes. Sample on request.

Many other specific "Magnet" remedies are available for different purposes, such as eradicating worms, ants, weeds, etc. Send for list and prices.



For Seeding New Ground or renovating old lawns, I recommend my "Defiance" Permanent Lawn Mixture. Per bushel (of 28 lbs.) \$8.50; \$30 per 100 lbs.

For Shady Places use "Defiance" Permanent Shady Lawn Mixture—per bushel \$8.50; \$30 per 100 lbs. All grass seeds delivered anywhere in the U. S.



William Tucker
Grass and Turf Specialist
35 Nassau Street, New York

Garden Necessities That Repay You

Bushes, plants, vines must have some kind of support and protection in order that they may grow most luxuriously. The best for the purpose, the one that combines beauty in itself as well as proper construction for endurance, is always the cheapest in the end. Trellises and bed guards repay many times over in plants, blossoms and foliage. The Excelsior Rust Proof Trellis on the end of the porch shown here not only supports the vines, but is ornamental as well. The bed guards are of the same make—same construction and materials. These

"EXCELSIOR"
TRADE MARK
RUST PROOF

Trellises and Bed Guards

are made of heavy, tough, springy steel wires, which are held at every intersection in the vise-like grip of the Excelsior Steel Clamp, a patented feature. AFTER making, the whole fabric is galvanized by the Excelsior Process, that not only makes it rust proof, but thoroughly and completely solders it into one rigid mass. These trellises won't buckle, droop or sag. Winds and shock have no effect on them. They can be taken down and used over, and will last for years.

To insure getting full value for your money, ask your hardware dealer for these products. We also make Excelsior fences, tennis fences, tree guards, gates, and similar garden necessities. We will cheerfully send catalog B on request.

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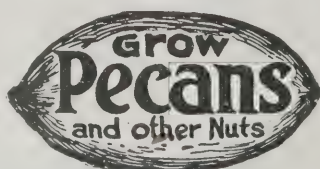
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Comments on New Carnations

THE turbulent desire for something that is new, or different, saturates every human spirit, and the novelty creators are constantly endeavoring to satisfy this incessant craving. The call for novelties in flowers is just as emphatic as the call for novelties in fashion. Every new creation is the "best ever," just as the latest and newest baby is "the cutest thing." Every creator's goose is a swan in his own estimation and it devolves upon the critic to turn on the current of cold facts in his critical analysis. But location, climate, atmospheric and soil conditions enter into the growing of flowers to such an extent that even the cold critic may err in his judgments, and it is not always safe or even fair to call the introducer to account for a seeming failure. His novelty may be all he claims for it in his locality, and yet be an utter failure in another.

In the case of Carnations, this truth has been emphasized many times. The western-raised Carnations, with few exceptions, have never materialized in the East, while the eastern-raised varieties invariably have done well both in the East and West. Enchantress (Fisher) and Beacon (Fisher) are two sterling varieties that have stood the test of time in every climate and vicissitude, and they are used as standards of comparison.

There have been many pink and white varieties that have stood well the test of time, but no red and scarlet colors. While there have been many aspirants, few of them have been long lived. Beacon is the one outstanding exception.

The past two years have seen a number of new-comers and they are principally in the red and scarlet class. Their survival is a question that only time can answer. The latest and most promising of this year's offerings is a western-raised variety named "Theonanthus" (Anthon Thea). It traces its genealogy back to Scott and Lawson by way of Enchantress, a noble line of ancestors. It has an exceptionally large flower and a fine scarlet color, with a good stem, and may be likened to a scarlet Enchantress. In and around Chicago it is well and favorably spoken of. It certainly looks like a winner. The demand for stock from all accounts is going to be heavy. There may not be enough to supply the demand this year. Merry Christmas, another novelty of the same color, is not well enough known to the writer to pass judgment on.

Of last year's introductions the scarlet "Nebraska" looks the best. It certainly is a beauty. In size, color, and habit Theonanthus will have to travel some to beat it. Very little of it has been disseminated in the East, and stock will still be scarce this year. The stock as grown in the West, Middle West and East, is giving entire satisfaction and it looks like a universal sort. It is vigorous and healthy.

(Continued on page 184)

Dreer's Famous American Asters

America now leads the world in the production of high-grade Asters, and our own famous strains, grown under our personal supervision, are acknowledged by experts to be unsurpassed.

We offer in our 1917 Garden Book over sixty distinct varieties and colors, but particularly recommend the following collection of six sorts, embracing several distinct types and colors, and which we feel sure will, on account of their free growth, profuse flowering, large size, and general excellence please the most critical growers of this popular flower:

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Dreer's Peerless Pink. Conceded to be the finest pink Aster ever offered. The form is nicely shown in the illustration.

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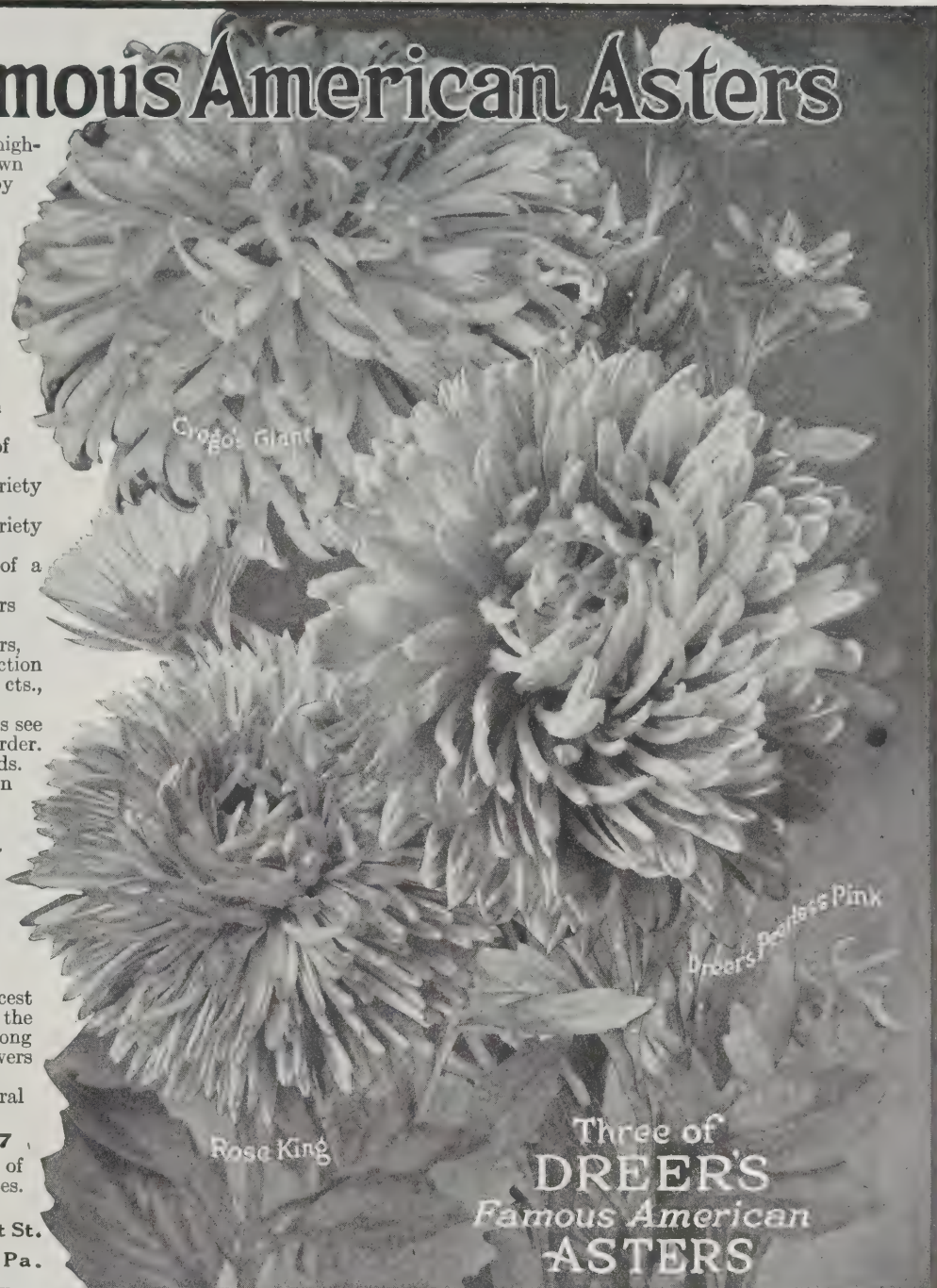
We offer this season over 250 of the very choicest varieties, more than half of the number being of the Hardy Everblooming Hybrid-Tea Class, all in strong two-year old plants that will give a full crop of flowers this season.

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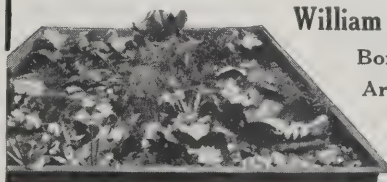
is the centre of interest. Water Lilies, Lotus, and other aquatics can be grown easily. My booklet for 1917

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The most important horticultural acquisition of recent years. Awarded the only Silver Medal ever given by the Massachusetts Horticultural Society for novelty and excellence in Sweet Corn.

DE LUE'S GOLDEN GIANT is the result of eleven years' selection by Dr. Frederick S. De Lue of Boston, Mass., from the product of "Howling Mob" crossed with "Golden Bantam."

With its 12 to 16-rowed ears it gives nearly four times the yield per acre that the Golden Bantam does with its smaller 8-rowed ears. The stalks are short and frequently produce two ears each.

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JOSEPH BRECK & SONS

New England's Leading Seed Store for Nearly 100 Years
51 and 52 No. Market Street Boston, Mass.



(Concluded from page 182)

with long stiff stems. It is not as bushy a grower as Beacon or Enchantress, and for profit the plants should be set closer.

Nebraska is a safe bet, and unless its constitution fails it, as has happened with so many scarlets, it should be a standard for years to come.

Belle Washburne is another of last year's scarlet introductions that has made many friends. The color is good and the stems are exceptionally long with size of flower well up to the average. It is happily a variety that comes into flower early and it would be profitable to grow as a Christmas crop only, and then thrown out after the holidays to make room for spring stock.

Aviator, still another scarlet of last year, reminds one of old Victory. The growth is sparse and wiry. The stem holds the flower well erect. It is a pigmy compared with the other varieties already mentioned. Yet, probably if planted close together and on a bench that has not too much head room, it might be grown with profit.

Last in this color comes Red Wing (Lawson). In habit of growth, character and almost every particular, it is a counterpart of Beacon. The color is better, however, and very few split calyx are seen. It is a veritable weed to grow, and knowing what Beacon has been, it is safe to say that this improved variety is a welcome addition.

With such a string of scarlets to choose from no wonder the layman is puzzled. To one who has seen them all and tried most of them, it would be a puzzle to name the "one best." The best three, however, we can say without hesitation are Theonanthus, Nebraska and Red Wing.

Cottage Maid (Cottage Gardens) is a novelty of this year's introduction which has been favorably known for some time. It is a sport of the well known Mrs. C. W. Ward, with all the characteristics of the parent except color which is a flesh pink resembling very much that of Enchantress Supreme. Mrs. C. W. Ward has been grown for years for its color (a dark pink) in fact it is the only dark pink variety to-day that is fully reliable (Good Cheer which was to displace it is behaving miserably in many places). The color of Mrs. Ward is its chief asset. The chief opponent to Cottage Maid, will be Enchantress Supreme. Will Cottage Maid displace Enchantress Supreme? We hardly think so. Still where Mrs. Ward does well, Cottage Maid should be given a trial.

Arawana (A. N. Pierson) is a new crimson which is a welcome addition to this color. We really need a good crimson at this time and Arawana will fill the gap. Princess Dagmar in this color is a fancy Carnation, but is too slow a producer for general purposes. British Triumph is a beautiful crimson with a sweet clove perfume, but also a slow producer. Harry Tenn is still grown, but is too small. Arawana is up to the average in size and a healthy, vigorous grower.

From a commercial florist's viewpoint: the Carnation business to-day is very chaotic, and hardly any grower in the country is making any money out of flowers. Indeed, there is danger of these passing out of commercial cultivation. At 5 c. a flower, the yield is less than a dollar a square foot of bench space. The best growers in the country are giving them up. Roses produce as many flowers each month as Carnations do, at a better price per flower. Carnations produce five months in the year; Roses nine months.

JAS. T. SCOTT.

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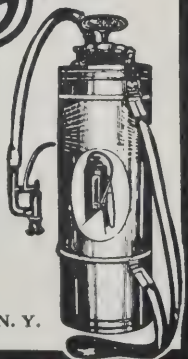
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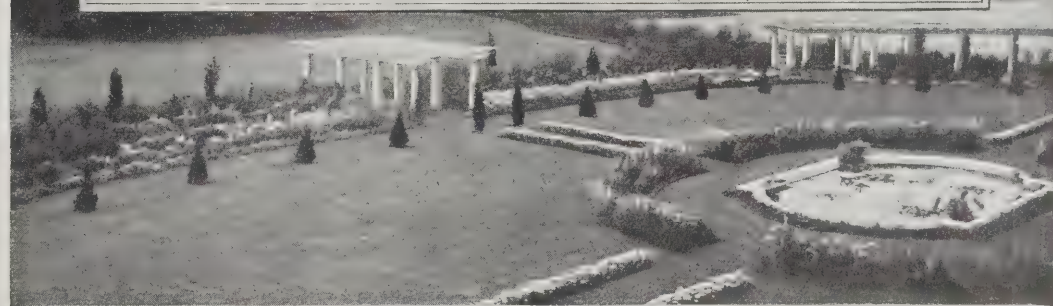
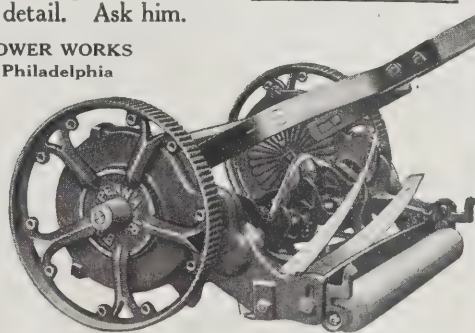
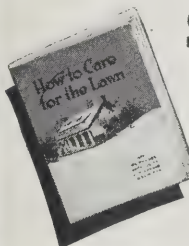


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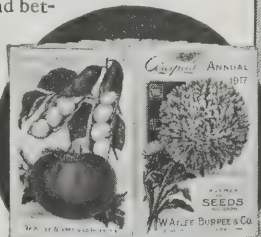
Turnip—1 pkt. Petrowski

The above assortment of choice Vegetable Seeds carefully packed and sent postpaid to any address on receipt of \$1.00

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W. ATLEE BURPEE & CO.
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This Year—Prize Potatoes!

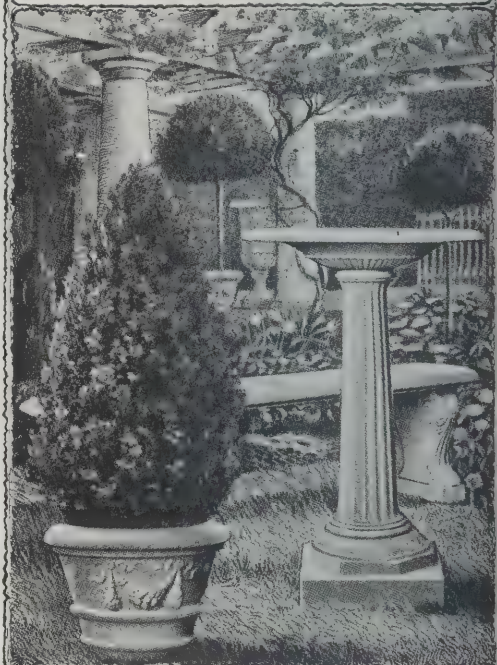
AMONG the crops of the garden and the field, none is of more unequal production than the potato. This, however, is not the potato's fault. As in the case of most inequalities of this nature, the trouble is almost wholly with the grower. According to the reports of the United States Department of Agriculture, the average yield of potatoes per acre, during the ten year period from 1903 to 1912, was 96 bushels. This, I should say, measured by the average man's experience, is a large crop. It is not often that those who grow potatoes without considering the nature of the plants and the proper way to handle the crop find their yield running more than 60 bushels; and yet where this crop is properly planted, fertilized, and cultivated, it has not been found a difficult matter to grow from 400 to 500 bushels on an acre. During the summer just past the writer saw lifted from a $2\frac{1}{2}$ acre field 590 bushels of choice tubers. This crop was grown on sod land. It was given no unusual attention, but it was managed in an intelligent and systematic manner. When we read of yields of this kind, which are by no means uncommon, it should bring us to the determination to grow this year prize crops of potatoes, for there is no reason why a man who grows potatoes at all should not grow fine ones, if he understands what is required.

The first consideration is that of seed. A great deal has been written about the proper seed for potatoes. Some writers urge the using of large potatoes; others of small potatoes; others of eyes only. The size, however, should not govern the selection of seed. After it has been determined what variety the grower wishes to plant, the selection of the seed should be made on the basis of the following points: (a) Smoothness of skin, indicating freedom from scab or other similar diseases. (b) Marketable shape of the tuber. (c) General appearance of plump health, insuring the grower that the tuber has not been sprouted. If early potatoes are to be grown, a standard variety should be planted. The same is true, of course, of late potatoes. In either case, it is better to grow a tried variety than to experiment. Let those who are fully equipped for experimentation try the new varieties. It is better for us to grow those which have been tested and have proven their worth. In regard to cutting potatoes, it is generally conceded that two eyes should be left in each seed piece. One eye would be sufficient if there were a certainty of its germination; but, as there is always doubt, each seed piece should have the two eyes. This cutting insures a good stand and this is of prime importance, for replanting is not only tedious, but it may mean that the

(Continued on page 188)

GALLOWAY POTTERY

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The Glory of the Garden

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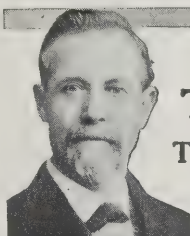
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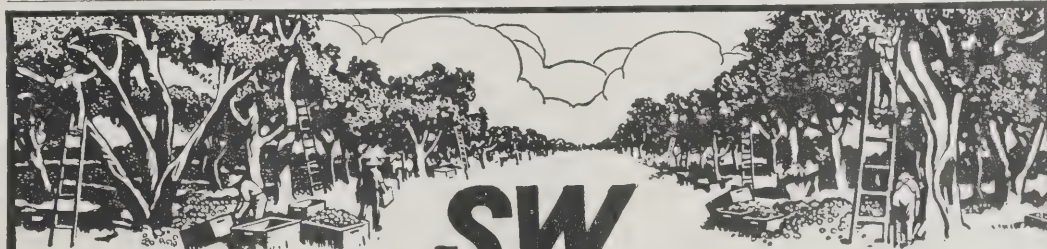
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This 48-page book explains the principles of planting, with 70 pictures and diagrams, including blue prints of typical plans for a city lot, suburban home, country house and one on which to draw your own plan. It describes and tells how to plant, prune and care for roses, shrubs, etc. A system of unit collections make it easy for the novice to secure results equal to that of the experienced planter, and also reduces the cost. 10 cents per copy—Money back if not satisfied.

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Sure death to tree pests

Saves time and money. Cheap to ship and easy to handle. Cannot freeze and keeps indefinitely. Quick death to all leaf-eating insects with absolute safety to foliage. Convenient—economical—safe—sure.

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Tuber-tonic
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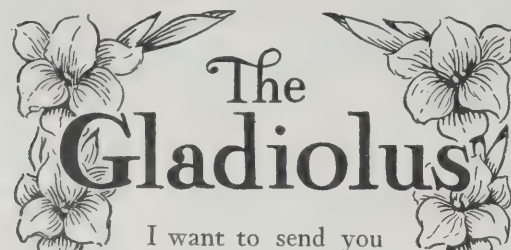
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Insecticide and Fungicide Makers
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The Gladiolus

I want to send you my beautiful, illustrated book called "The Gladiolus." It contains a short history of this beautiful flower, tells the best planting location, the kind of soil, when and how to plant, the care and cultivation of the plants while growing, how to water, how to properly cut the flowers, and how to take care of the bulbs; or, in a few words, it contains the result of my experience with Gladiolus covering a number of years.

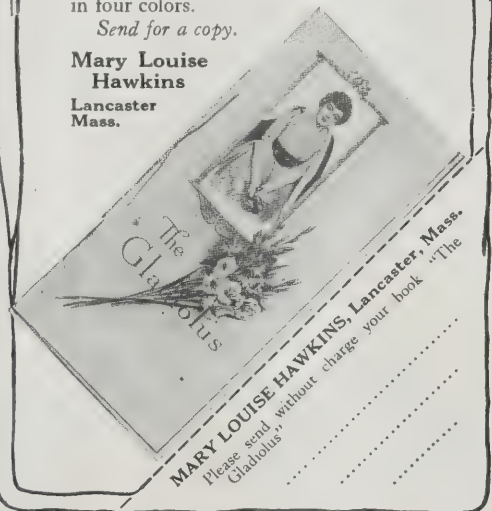
Gladiolus Bulbs

Developing my own varieties and growing only gladioli, my offerings are unaffected in quality or in price by the vagaries of foreign importations.

I have listed some of the most successful varieties with prices. Many of these are offered now for the first time, and are the very best of my prize winning collection. Two very beautiful and popular varieties, *Daisy Rand* and *Mary Fennell* are illustrated in four colors.

Send for a copy.

Mary Louise
Hawkins
Lancaster
Mass.



(Continued from page 186)

crop will lose days or weeks of the most favorable growing weather of the whole season.

After the question of seed should be considered the question of soil. The texture of soil in which potatoes ought to be grown is really of vital importance for tubers are intolerant of soil which is hard, tough, cohesive, or sour. The plants demand good drainage; and soil that is rich in humus, mellow in condition, deeply worked and pulverized until it is very friable. Few soils are naturally in this condition, regardless of whether they are new or have been under cultivation. It should, therefore, be understood how best to improve soil in which potatoes are to be planted. If the area is extensive the best method is to apply manure liberally in the autumn, to plow under this fertilizer, and to leave the land fallow over the winter. If, in addition to this fertilizer, a good sod has been turned under, the soil will be in admirable condition for growing the crop in question. Soil treated in this way should, in the spring, be thoroughly worked with disk harrows until not only the surface but the body as well have become thoroughly pulverized. If the area to be handled is small, the chemical condition of the ground may be brought to a state approaching perfection by the addition of liberal quantities of woods earth, sifted coal ashes, and materials of a similar nature. Care, however, must be taken not to enrich the land too highly with fertilizers having a heavy percentage of ammonia, for this will cause the crop to develop tops at the expense of tubers.

Ideal potato soil is rich, loose, loamy, sandy or gravelly; therefore, as any soil is made to approach a soil of this kind, it becomes adaptable to the growing of the best potatoes.

After the seed has been selected and the soil prepared, the potatoes should be carefully planted. Growers differ as to the proper depth, but 4 inches has given excellent results. Where the soil is very loose, inclined somewhat to be blowy and powdery, 5 inches would not be too deep to plant. Questions also arise concerning the spacing of the rows and of the individual plants in the row. I wish to quote descriptions of several notable crops grown a few years ago. These descriptions mention the points in question:

"The first prize in the potato contest for the states of Massachusetts, Rhode Island, and Connecticut was won by Mr. A. W. Butler, Brockton, Massachusetts, whose yield was 365 bushels from 1 acre. Mr. Butler's acre was planted on rocky loam. The rows were 36 inches apart and seeded with Green Mountains, cut to 2 eyes, planted 14 inches apart, by hand, and covered 3 inches deep. The piece was cultivated 5 times by machine: First, when the potatoes were 2 inches high and then about every two weeks. The acre was sprayed with Pyrox when the plants were about 4 inches high and then about every two weeks until they had been sprayed 5 times." Another prize acre yielding 503 bushels and grown by Mr. Alvah B. Cobb, of Penobscot, Maine, employed the following spacing: The rows were 33 inches apart; the plants were 10 inches apart in the row, and the seed pieces were covered 4 inches deep. In this same contest the second prize was awarded to Mr. O. B. Keene, of Liberty, Maine. His crop was 419 bushels. He had dropped the seed pieces 8 inches apart in the rows, and covered them from 6 to 8 inches deep.

(Continued on page 190)



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They lend character and distinction to a place, making it stand out from the rest. Their pleasing, artistic effects, worked out with well chosen trees, shrubs, and plants, satisfy that longing for the beautiful things of Nature, which most of us possess.

Our years of experience, both in this country and abroad, have given us the ability to handle successfully landscape work of every character. Beautifying the Home, School, Factory, Park or Cemetery Grounds. Laying out Sub-divisions, etc. The Galloway Plan of Landscape Gardening, expressed in a nutshell, means—a COMPLETE landscaping service.

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Our sure growing evergreens lend a finished touch to any home. For 56 years we have been furnishing choice, hardy evergreens to people all over America. We offer you the choice of the greatest evergreen stock in the world—over 50,000,000 evergreens on hand.

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and other summer-flowering bulbs and hardy perennials is now ready. Send for it, and we will also send later our Fall Catalogue of the

Best Dutch Bulbs

procurable in this country

Franken Brothers
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MORE FRUIT from your trees if you keep them free from San Jose Scale, Aphis, White Fly, etc., by spraying with

GOOD'S CAUSTIC POTASH SOAP No. 3

Kills all tree pests without injury to trees. Fertilizes the soil and aids healthy growth.

FREE Our valuable book on Tree and Plant Diseases. Write today.

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Gardeners

IT'S so easy to have a luxurious, thriving, healthy garden that no one should be satisfied with any other kind. One tool is all you need—a simple, well-balanced, easily operated

PULL-EASY

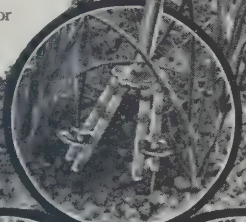
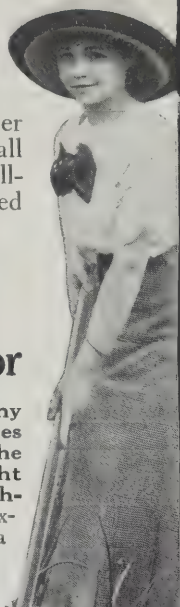
ADJUSTABLE

Garden Cultivator

Instantly adjusted to any width from 7 to 18 inches so you can cultivate the full width of any row, right up close to the plants without injuring them. Extended fully can be used as a rake, if desired. Middle tooth can be removed and two rows worked at once.

Most dealers sell the Pull-Easy. If your dealer hasn't it, write his name and your own on the margin of this ad, tear out and mail to us with \$1.25, \$1.35 west of Rockies and in Canada, and you will promptly receive your Pull-Easy by Parcel Post prepaid. Literature on request.

Adjusted for narrow rows



Full 18 inch width

Middle tooth out, working two rows at once

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They can be obtained in white marble, granite or antique finish.

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Rhododendrons—Hybrids

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Kalmia Latifolia (Mt. Laurel)

Send list of wants for prices.

For other trees and plants send for catalogue.

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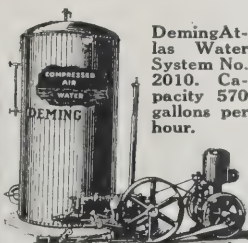
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DEMING Water-Supply SYSTEMS

Deming equipments do their daily tasks without thought or attention from the user; they bring to every home the most modern, the simplest and the easiest-to-operate equipment for home and farm water supply.

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Deming-Atlas Water System No. 2010. Capacity 570 gallons per hour.

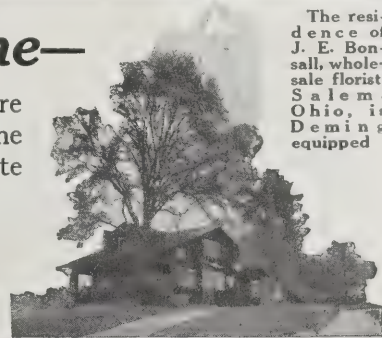
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Erected for Mr. F. A. Seiberling, President of the Goodyear Rubber Co., Akron, Ohio

The individuality of the owner always finds an opportunity for Expression in each King Greenhouse.

On stepping into your "King" your friends feel your personality just as they do in your home and you are able to point with pride to the features you have suggested to add to its comfort and charm.

However, aside from the Beauty of the Construction and the individual details, King Greenhouses arouse the greatest pride of ownership because they are so productive, so practical and so easy to operate. Our experts see to it that your ideas are incorporated without sacrificing the least little practical feature.

Send for our illustrated literature and tell us about what you have in mind. We prepare special sketches or send a representative without charge.

We will build you a Greenhouse or Conservatory that will always be a delight to you and your friends. King Garden Frames are illustrated and described in our Bulletin No. 42A. Ask for it—if you are interested.

King Construction Company

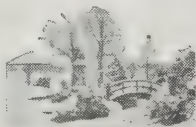
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Most of the U. S. and Canada is perfectly suited for delightfully artistic tea gardens and rockeries. Surprisingly quick results at moderate cost. This has been my specialty for thirty years.



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PORTER'S HIGH QUALITY STOCK

Illustrated Price List free. Write for copy to-day.

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NOTE—Big Stock of Large Specimen Norway Maples at Low Prices

Beautify and make productive your idle land
by planting

EVERGREENS

1000 Three Year Old Trees for \$6.00

Catalogue and booklet on request

THE NORTH-EASTERN FORESTRY COMPANY, Cheshire, Conn.



GROWN IN NEW JERSEY

under soil and climate advantages, Steele's Sturdy Stock is the satisfactory kind. Great assortment of Fruit, Nut, Shade and Evergreen Trees, Small-fruit Plants, Hardy Shrubs, Roses, etc. Fully described in my Beautiful Illustrated Descriptive Catalogue—it's free!

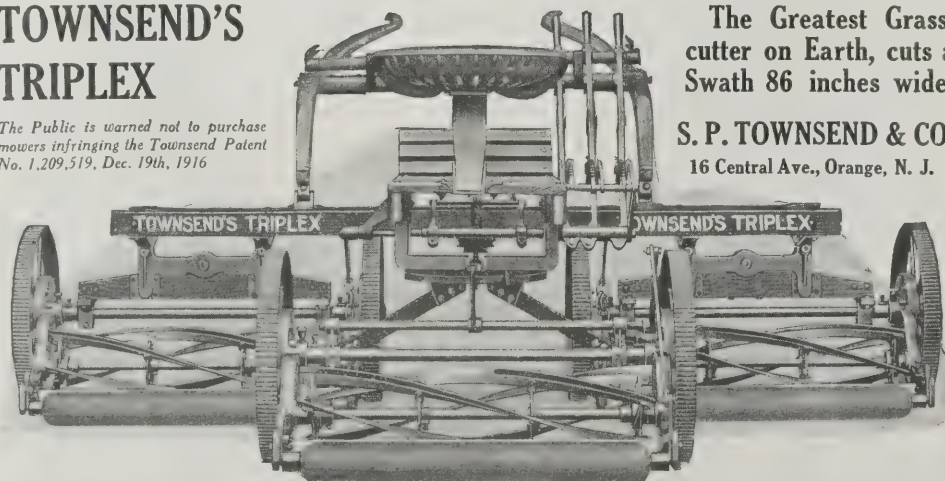
T. E. STEELE

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TOWNSEND'S TRIPLEX

The Public is warned not to purchase
mowers infringing the Townsend Patent
No. 1,209,519, Dec. 19th, 1916



The Greatest Grass-
cutter on Earth, cuts a
Swath 86 inches wide.

S. P. TOWNSEND & CO.

16 Central Ave., Orange, N. J.

Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn in a day than any three ordinary horsedrawn mowers with three horses and three men.

Send for Catalogue illustrating all types of TOWNSEND MOWERS.

Floats over the uneven ground as a ship rides the waves. One mower may be climbing a knoll, the second skimming a level and the third paring a hollow.

Does not smash the grass to earth and plaster it in the mud in springtime nor crush out its life between hot rollers and hard, hot ground in summer as does the motor mower.

(Concluded from page 188)

It may be well to remind the grower that rows should invariably be run north and south rather than east and west, and that rows on a slope, however slight, should run across the slope rather than up and down.

It has been mentioned that Pyrox has been successfully used as a spray on large acreages of potatoes. This preparation can be safely recommended for it combines all those elements which protect growing potatoes from the attacks of both early and late blight, and which are fatal to any Colorado beetles which may disturb the plants. Of course, bordeaux mixture for blight and arsenate of lead for insects are just as good as Pyrox; but the use of each of these for a separate reason doubles the work of the grower.

The tillage of potatoes consists chiefly in keeping the ground clear of weeds, of breaking any crust formed after showers, and of keeping a dust mulch about the plant. Naturally this tillage is possible during the first half of the season only, for when the vines begin to mat the alleys and the tubers begin to form close to the surface, it is a bad policy to try further cultivation. If the area planted is small, a great deal of hand weeding can be done. During the early stages of the growth of this crop it has been found that cultivation with a rake is very effective. While it is advisable to draw the soil toward the roots of the plants, they should by no means be killed.

The appearance of the field will clearly indicate when the harvest is ready. Of course, if the aim of the grower is to obtain a medium-sized crop of very early potatoes, he himself best knows when to lift the tubers; but the average man wants his potatoes to do the very best they can. He should, therefore, permit the vines to grow to maturity and to die. The tubers sometimes make fine growth after the vine begins to turn yellow; then, too, the crop can be more easily kept if the potatoes have thoroughly matured.

It is not usually understood how early potatoes may be planted nor yet how late this same crop can be successfully grown. In the latitude of southern Pennsylvania, potatoes have frequently been planted as early as March 15th and as late as July 15th. In nearly every instance, these extra-early and extra-late crops were in every way satisfactory. Some of the very finest late potatoes that the writer has ever seen were planted on the 16th of July and lifted on October 18th. When such possibilities are considered, it is realized that land can easily be double-cropped with potatoes and some other vegetable. For example, after early potatoes, celery, sweet corn, late cabbages, turnips, late beets, late string beans, and other similar crops may be grown. On the land to be used for very late potatoes, lettuce, strawberries, green peas, early beets, radishes, and the like may be grown. Sometimes an old strawberry bed, turned under about July 1st and planted to late potatoes, will give excellent results. It should be remembered, however, that when the potatoes are planted late an early variety should be used because the season of growth will be short.

There is great pleasure and profit in growing fine potatoes. There are loss and disappointment in growing a crop that is just ordinary. Why not grow prize potatoes? There is nothing difficult about it. Others succeed readily. If we do not follow their example we deserve no sympathy. This year, let it be prize potatoes or none.

Pennsylvania.

A. RUTLEDGE.

Shield Your Home The Year 'Round

Shade trees guard the home against the intense heat of the summer sun; evergreens dull the frosty edge of winter's chilling blasts.

Every home can be made more pleasant and comfortable with Hoopes' trees and plants, and every dollar you invest in trees, shrubs and roses makes your place more cheerful, more attractive—and more valuable.

There is a Hoopes salesman in your locality. When he calls ask him about planting your grounds. Arrange with him to have our landscape artists prepare free planting plans. Or write to the office for your copy of

"Hoopes' Specialties"

It is both a planting guide and a catalogue. *Good "Grown in America" specialties for every planting need are treated in full.*

Hoopes, Bro. & Thomas Co.
45 Maple Avenue West Chester, Pa.



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Quick Growth for Lawn and Garden

Your grass, flowers and vegetables will show the same remarkable results that these Cleveland people secured.

Nitro-Fertile is an odorless liquid to be mixed with water—two tablespoonsful to the gallon. It soaks in around the roots

where it is immediately absorbed by the plant, thus stimulating a quick, healthy growth.

Nitro-Fertile supplies every element needed for plant growth and will give you better foliage, finer fruit and larger blooms.

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"To Nitro-Fertile I give the credit of producing chrysanthemums that won first prize in the Cleveland Flower Show. Have also given it a thorough trial on outdoor plants with very marked results."

A. C. Kendel, Seed Merchant

"After selling Nitro-Fertile for three years, we find the results of its use to be very evident. We look for constantly increased sales in it, to our retail trade."

Hugh L. Thomas, Gardener to Chas. A. Otis

"One had only to see my vegetables and flowers to note the marked difference between those treated with Nitro-Fertile and those not treated with it."

NITRO-FERTILE
Trade-Mark

Trial Bottle, 35c. Postpaid

Half pint enough for 15 gallons of fertilizer will be sent for 35c. if your dealer's name is mentioned.

Order now—1 Gal. \$2.00; 1 Qt. 60c.; ½ Pt., 25c. at your dealer's

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Also manufacturers of Lime-Fertile—a complete fertilizer in powdered form



Which way do you work?

Do you still sow seed by the old slow, laborious hand-dropping method, or use the up-to-date Planet Jr Seeders, and cover three times the acreage in the same time?

Do you still cultivate in the old back-breaking, time-eating way, or use the perfected Planet Jr hand cultivators and do the work more thoroughly in one-third the time?

Do you get but meagre returns for all the time, labor and material you put into your garden; or do you get bigger, better crops with less effort and greater profit?

These are questions no crop-grower, large or small, can afford to pass unanswered.

Planet Jr Garden Implements

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow pays for itself in a single season in the family garden as well as in larger acreage in time saved, labor lightened, and the increased amount of work done. Sows all garden seeds (in drills or hills), plows, opens furrows and covers them, hoes and cultivates easily and thoroughly all through the season.

No. 12 Planet Jr Double and Single Wheel-Hoe Combined is the greatest hand-cultivating tool in the world. It straddles crops till 20 inches high, then works between rows with one or two wheels. The plows open furrows and cover them. The cultivator teeth work deep or shallow. The hoes are wonderful weed-killers.

Use these tools and make your work count for most. We make 32 styles of seed drills and wheel-hoes—various prices.

New 72-page Catalogue, Free!

Illustrates Planet Jrs doing actual farm and garden work, and describes over 70 different tools including Seeders, Wheel-Hoes, Horse-Hoes, Harrows, Orchard-, Beet-, and Pivot-Wheel Riding Cultivators. Write postal for it to-day!

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The following collections have pleased hundreds of customers and will please you as well.

"All Star" Collection Gladioli

50 large bulbs in 6 distinct colors, properly named and labelled. \$1.

Ten Gorgeous Dahlias

2 plants each of a fine Peony, Cactus, Decorative, Show and Collarette Dahlia. \$1.

Ten Hardy New Chrysanthemums

10 fine plants in five lovely colors. \$1.

Ten Beautiful Iris

The hardy "orchids" for the millions. \$1.

Ten Everblooming Roses

For a garden of delightful fragrance. \$1.

All 5 collections, together with a fine bulb of famous Evelyn Kirtland Gladiolus for \$5.

All prices postpaid East of Mississippi River. West of that add 10% for postage. Our free book of Culture Directions is worth many dollars to you. Write for it.

Evelyn Kirtland, the famed Giant Gladiolus, 50c. each; \$5. for 12. Miss Kirtland measuring length of spike (note yard stick) of Gladiolus named after her.

AUSTIN-COLEMAN COMPANY

Originators, Giant and Distinct Gladioli WAYLAND, OHIO

The Fragrant Flowered Daphnes

THERE are about forty species of Daphne generally distributed over parts of Europe, North Africa and Temperate Asia. The majority are greenhouse pot plants and the sweet scent of Daphne indica, var. odorata is familiar. Fortunately a few species prove quite hardy and include some of the most desirable of small evergreen and deciduous shrubs.

The Mezereum, Daphne Mezereum is the earliest to flower out-of-doors; a deciduous shrub with slender erect branches that flowers very early in spring, usually about the first week of April, and before the leaves appear. The flowers are produced all along the branches and are usually of a purplish-red color, although they vary white to red. There is an autumn flowering variety (grandiflorum) with large deep purple flowers. In Daphne Mezereum the flowers are succeeded by quantities of scarlet or yellow poisonous berries.

About the middle of May Daphne Genkwa produces along the whole length of its branches rather large flowers of a pale lilac color, appearing before the leaves. This is a spreading shrub with erect branches and grows about three feet tall. Plants of this species derived from Japan have never proved a success in the Arnold Arboretum, but plants raised from seed collected by Mr. E. H. Wilson in Western China have proved fairly hardy in an exposed position, and last year produced seed from which a number of seedlings have been raised, and if these prove, as they should do, more hardy than the type they will be a very welcome addition to our early flowering dwarf shrubs. Mr. Wilson speaks highly of this plant in his book on his travels in Western China and considers it by far the finest species.

Among the hardy kinds Daphne Cneorum appears to be the general favorite and is commonly known as the "garland flower" from the fact that in that part of central Europe where it grows wild the girls use it when in flower to make garlands for their hair. The flowers here are produced about the middle of May in terminal clusters on semi-prostrate branches. They are of a rose pink color and very fragrant. In a suitable position this dwarf plant soon forms a wide spreading mat with narrow deep-green leaves that are retained all winter. A second crop of flowers is frequently produced during September. There is a variety called majus with larger, darker colored flowers, and there is also said to be a variety with white flowers. I have never seen Daphne Cneorum produce seed.

Daphne altaica, from the mountains of Southern Siberia is a perfectly hardy deciduous shrub with erect branches growing about three feet tall. The flowers, which are white and scentless, are produced in terminal umbels during the early part of June. The foliage is of a yellowish green when young.

From the European Alps comes Daphne Alpina which has very fragrant white flowers assembled closely together. This species may also be readily distinguished from D. Altaica which it otherwise resembles by the downy covering on the lower surface of the young leaves and on the young branchlets. It grows about two-feet high and flowers during the early part of June. It is partially evergreen but requires protection here during the winter.

Daphne caucasica flowers at the same time as the two previously mentioned species, and has a similar habit of growth. The flowers are white and of a disagreeable odor. It also grows about two feet tall and a light protection usually carries it through the winter.

Arnold Arboretum

W. H. JUDD.

PROTECTION

for Flowers Vegetables
Shrubs etc.

NIAGARA

3 in 1 Dust Mixture
applied with
Niagara Hand Duster

THIS light little hand machine protects your plants by blowing a cloud of fine dust over the foliage—it gives better protection than a liquid sprayer—does the work much more quickly and eliminates the disagreeable sloppiness of handling the liquid.

Niagara 3-in-1 Dust Mixture is a finely powdered, carefully combined insecticide and fungicide—made especially for use with this duster.

Put up in pound packages—thoroughly mixed, ready to use, it offers the most convenient, cleanly way to protect your plants from aphids, slugs, potato bugs, etc., etc.

Duster, \$2.50; Niagara 3-in-1 Mixture, 40 lbs. lb.

If your dealer can't supply you, write us for full particulars.

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83 Main St., Middleport, N. Y.

Makers of the famous Niagara Duster and Dust Materials which have revolutionized the protection of orchards and field crops

Double Your Garden Joys With Select German Iris

The colors in this group of German Irises harmonize and will form the nucleus of a valuable collection in your garden.

Cherion. Lilac-mauve and violet. **La Tendresse.** Soft lavender-blue. **Lord Salisbury.** Amber-white and dark purple. **Pallida plicata.** Clear purple; lilac edge. **Maid Marion.** Clear lavender; touched purple. **Queen of May.** Delicate pinkish-lilac.

One plant of each variety, \$1 delivered in the United States

My booklet includes a list of German and Japanese Irises, Peonies, and many other perennials. Mailed to your address on request.

ADOLF MULLER

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Norristown, Penna.

get **HOLCO** Seed Book

Tells you what and how to plant in your vegetable and flower garden and when to plant it. Makes crops sure and dependable. Send 20c. for one package each of Giant Pansy and Aster Seeds and get the book FREE

THE HOLMES-LEATHERMAN SEED CO.
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YOU Should Plant KING'S HARDY Old Fashioned FLOWERS

Because they represent a wonderful variety. Because they increase in size and beauty each succeeding year and with proper selection you can have a handsome garden with an everchanging color from May to December. Here are the names, both botanical and common, of a few kinds you should plant this spring:

Anemones	—	Windflower
Anthemis	—	Golden Marguerite
Aquilegia	—	Columbine
Bellis	—	English Daisy
Buddleia	—	Butterfly Bush
Campanula	—	Bellflower
Convallaria	—	Lily of the Valley
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500-1,000 lbs. " 4½ " "	
1,000 lbs. or more " 4¼ " "	

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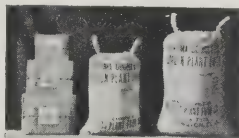
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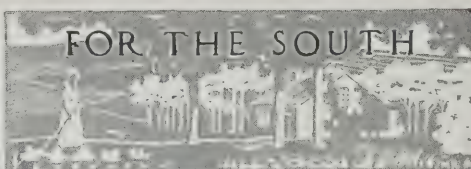
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M. B. ATKINSON

Bogota, New Jersey



Vegetable Garden Making in a Rush

THE chief routine work is to harden off the egg plants, tomato and pepper plants in the cold frames by leaving off the glass during the day (unless the weather is cool), being careful of course to recover the frames at night. Start sweet potatoes to get sprouts in a hotbed made of wet leaves packed down and a four-inch top layer of sand.

Onion plants raised in cold frames can be set out in open ground the end of this month. Fall planted cabbages should be pushed on by frequent applications of nitrate of soda.

Among the strawberries work in a good commercial fertilizer and put straw or pine tags close around the plants to keep the berries clean.

It is not too late to plant early potatoes though if the weather is open and the soil in good condition, it is best to get them in the ground the end of February or first of March. Eureka and Irish Cobbler are good early sorts.

In planting a garden, put the long season crops such as rhubarb, carrots, salsify and parsnips in one section. Plant cucumbers, squash and melons to themselves and widely separated from each other. It is the prevalent opinion [quite erroneous, however, Ed.] that the close proximity of these cucurbits affects the flavor of each other. However that may be, each one requires much space, as the melon hills should be six feet apart each way.

The garden plot for melons and tomatoes should now be put in condition, checked off in squares, six feet apart for melons, four feet for tomatoes. At the conjunction of the squares dig a two-foot hole and put in a foot of well rotted cow manure, pull the dirt over this and make a hill. At the end of May place in the centre of each hill the tomato plants and the melon seeds respectively.

Continue planting the wrinkled varieties of garden peas, also biweekly plantings of string beans, beets, summer varieties of lettuce and radishes until the first of June and begin again at the end of summer for the fall garden.

The Government is urging a larger planting, too, of medicinal herbs. Farmer's Bulletin 663 gives interesting and valuable information regarding these. It could be made an interesting and profitable occupation and it is certainly a necessary part of home preparedness.

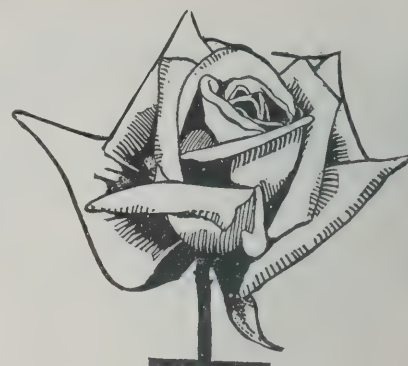
LAWN AND FLOWER GARDEN

In early spring the weeds begin to appear on the lawn and it should have immediate attention for if the weeds are not hoed out when they first appear, they increase at a surprising rate. The bare places should be raked over and grass seed sown and rolled in and a little nitrate of soda scattered over just before a rain.

The coarse manure which was spread over the flower borders in the fall should now be spaded into the ground, incorporating at the same time a little bone meal and acid phosphate.

The perennials sown in the cold frames last August should be removed to the borders and well rotted cow manure or good compost

(Continued on page 196)



Double Value This Month

This most unusual offer enables you to provide for a lovely display of everblooming Hybrid Tea Roses at almost no cost. The regular price of these Roses is 5 for \$1, but I now offer double for the money—10 Roses—each one a different kind properly labeled and sent prepaid, all for only \$1 (or 60 for \$5) if you mention this paper. If you appreciate choice Roses don't miss this liberal offer. ORDER NOW.

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April 10, Poetry Day. April 17, lecture on Benjamin Franklin, Printer, by John Clyde Oswald. Full information at the Book Shop.

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Many tools in one. Will open its own furrow; sow in continuous rows or drop in hills, cover the seed with loose soil, pack it with a roller and mark the next row—all in one operation! Quickly changed as needed into a fast-working wheel hoe. Stored in small space.



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Makers also of Potato, Spraying and Cultivating Machinery

(Concluded from page 194)

placed in the holes to which they are transferred. Plant in groups rather than rows. Do not put in same beds flowers whose colors clash. If a calendar is kept as advised in these articles one should know the blooming periods of the various flowers and thus be able to arrange a pleasing effect. Also sow seeds of annuals in the open border.

Transplant from hotbed into cold frames the perennials that were sown in February, three inches apart. Shade with lath sashes in hot days and glass frames should be put in if nights are very cool. Water in the mornings.

Plant a few of each kind of flower in small pots and sink into the cold frame. These can be used as reserves later on in the summer to fill in the gaps in the borders.

Violets should now be separated and planted in rich mellow soil in rows in the open ground and given constant cultivation and care throughout the summer to make large plants to put in the cold frames the end of August for winter blooming.

FLOWERS FOR SUMMER DROUGHT

Drought resisting flowers should claim attention in the South so one can have flowers during the months of July and August. Petunias and Verbenas are especially desirable and in the latter there is a wide range of color. Snow-on-the-Mountain Euphorbia blooms the latter part of August into September, is two feet tall and makes lovely cool masses of white and green in the garden. As a low growing plant the Abronia, so like the Heliotrope in flower and the Verbena in leaf, is a great addition to the garden because of its long season of bloom and easy cultivation.

Dormant and potted Roses can be planted this month, also Peonies and perennials and many deciduous shrubs, though it is a little late for the early blooming varieties (The Forsythias, Loniceras, Pyrus japonica, Magnolias Soulangea and stellata). They should be planted in the fall, as they bloom in January, February, and March or immediately after the blooming season.

Spray the grape vines and all fruit trees with bordeaux mixture for brown rot and fungous diseases and two weeks later add to the mixture which should then be summer strength a little arsenate of lead to destroy the plum curculio and the codling moth. Examine peach and plum trees for the peach borer. It is at the root and should be dug out with a sharp knife or wire and the trunk painted with coal tar a foot below and above ground.

Virginia.

J. M. PATTERSON.

Where the 17-Year Locust is due

THIS Spring the 17-year locust (or brood VIII of the periodical cicada) may be looked for in western Pennsylvania, eastern Ohio, northern West Virginia, northern New Jersey, northern Maryland, central North Carolina, southwestern New York, southern South Carolina, northwestern Illinois, and Martha's Vineyard, Massachusetts. And also possibly in N. Carolina, southern S. Carolina, southwestern New York, and northwestern Illinois.

In counties where this insect appeared in large numbers in 1900, fruit trees should not be planted extensively this spring. Young trees may have the trunks and large limbs wrapped with paper to prevent egg-disposition, and the upper limbs should then be either inclosed by mosquito netting as complete protection or sprayed liberally with bordeaux mixture or lime-sulphur wash as partial protection.

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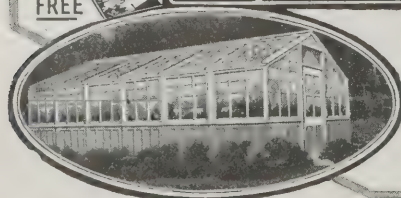
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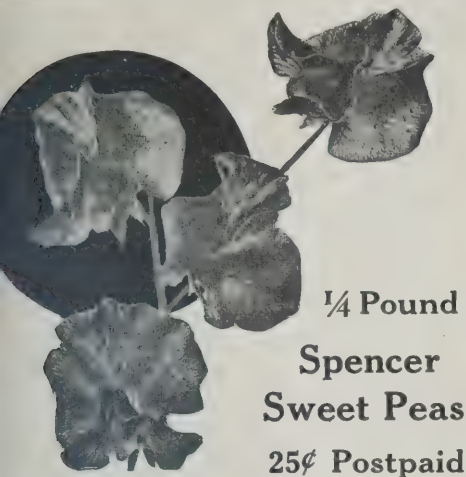
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- 10 BARON HULOT, beautiful violet blue.
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COMING EVENTS CLUB & SOCIETY NEWS



Meetings and Lectures in April

The following dates are meetings unless otherwise specified

2. New Bedford, Mass., Horticultural Society.
3. Garden Club of Myers Park, Charlotte, N. C., Bulb Show.
Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Pleasantville, N. Y., Lecture: The Home Vegetable Garden.
4. Short Hills, N. J., Garden Club.
5. Marshfield, Mass., Garden Club.
6. Pasadena, Cal., Horticultural Society.
9. Park Garden Club, Flushing, L. I., Programme: Our Native Birds.
Rochester, N. Y., Florists' Association.
New Rochelle, N. Y., Garden Club.
New York Florists' Club, New York City.
11. Short Hills, N. J., Garden Club.
Lenox, Mass., Horticultural Society.
13. Nassau Co. Horticultural Society, Glen Cove, N. Y.
Connecticut Horticultural Society, Hartford, Conn.
Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
14. Minnesota, Minn., Garden Flower Society.
17. Dobbs Ferry, N. Y., Horticultural Society.
17. Garden Club of Myers Park, Charlotte, N. C., Subject: Making a Garden.
Lake Geneva, Wis., Gardeners' & Foremen's Association.
18. Short Hills, N. J., Garden Club.
Rhode Island Horticultural Society, Providence, R. I.
Tarrytown, N. Y., Horticultural Society.
19. Marshfield, Mass., Garden Club.
20. Pasadena, Cal., Horticultural Society.
23. Park Garden Club, Flushing, L. I. Lecture: The Hardy Garden.
25. Short Hills, N. J., Garden Club.
27. Connecticut Horticultural Society, Hartford, Conn.
28. Dobbs Ferry, N. Y., Horticultural Society.

Garden Beautiful Contest at Williamsport, Pa.

A FIRST-YEAR flower garden, composed exclusively of annuals, proved the winner in a spirited and interesting "City Beautiful" contest, conducted by the Rotary and Garden clubs of Williamsport, Pa., during the past summer. The garden, the property of Mr. and Mrs. V. King Pifer, and surrounding their summer cottage, not only won the leading prize of \$25, offered by the Rotary Club to the flower garden or yard showing the greatest improvement, but captured the special prize of \$20, offered by the Garden Club, for the most beautiful flower garden in the city and its suburbs. More than 500 gardens were entered in the contests.

Early in June the plot about the cottage was bare and without sod. Where now are lawns, there was a strawberry bed in July. There were no permanent plantings about the cottage with the exception of several two-year-old peach trees. Mr. Pifer, after surveying the place, decided that in order to make a flower garden that would prove attractive, only annual-blooming varieties could be used. He never had grown flowers and made use of those with which he was more or less familiar and which were among the most common varieties—Cosmos, Marigolds, Balsams, Zinnias, Bachelor-buttons and Nasturtiums. These were grown from seed, in large quantities and set out after the border beds had been prepared. There were no flower beds in the lawn, all being used in the borders or close to the cottage.

The only rule observed by the contestant was to stick to straight lines and endeavor to produce massed effects. Cosmos invariably formed the background, with Marigolds and Zinnias in all shades in front. Masses of Bachelor-buttons and Balsams were intermingled to produce variety, all the beds being bordered with the trailing varieties of Nasturtiums. One of the attractive features of the garden was the front border, 140

feet long, containing triple rows of cosmos which attained a height of six feet and during July, August and September bore the pink, garnet and white blossoms most profusely. The choice of annuals made by the contestant produced a constant bloom throughout July, when most gardens are ragged, lasted until bitten by the frosts of late September.

Speaking of his success Mr. Pifer, who is a newspaper man and worked his garden mornings and evenings, says: "I am led to believe that whatever success my garden achieved was due to the fact that massed effects were used and that the flowers were grown in superabundance. Instead of trying to grow dozens of varieties I selected six, but there was enough of every flower to excite interest and admiration. Variety was sacrificed for quantity and color effect. It was a show garden in the strictest sense of the word, running the entire scale of color harmony from the most delicate colorings of the pink and white Cosmos to the bold, flaunting brilliant hues of the Marigolds and Zinnias. The only color I tried to avoid was the magenta."

A Social Service Garden

LAST summer my attention was drawn to an entirely new club, whose purpose was professedly humanitarian—"Aster Club" of Monroe, Conn. The membership consisted of enterprising young ladies who were spending the summer in the vicinity. A few were members of the Civic Club of the town; Judge Peck, of Derby, furnished the seeds.

The work of planting the seeds fell largely to the girls of the town, but ground space for the aster garden was secured from a church. The seeds were planted in large pans filled with rich soil. By the first of June the plants were ready for transplanting.

Transplanting day presented a novel sight as the members, clad in sun hats and armed with hoes and trowels, arrived in automobiles and teams, each member with her pan of Asters.

By the end of August the plants were a mass of flowers.

The first cutting of more than one thousand blossoms was taken by three of the club members to the Griffin Hospital of Derby and that hospital being the nearest to Monroe was given weekly donations of the fresh cut flowers. The second cutting of a thousand blooms was sent to the New Haven Hospital while later in the season cuttings were sent to Grace Hospital of New Haven and St. Vincent's Hospital of Bridgeport. The club also furnished bouquets for the churches and the sick of the neighborhood. In this way hundreds of sufferers were cheered by the efforts of this novel Aster Club.

A Progressive Society

THE Columbus Ohio Horticultural Society has undertaken a campaign of active education, under the newly elected President Prof. Wendell Paddock. It will issue from time to time pamphlets or bulletins on popular topics, beginning with one on Roses in the Home Garden.

Build a Hedge— Not a Fence

A hedge on the home grounds is much more attractive and valuable than a fence. A hedge lasts longer and does not "tumble down" after a few years of service. The ideal hedge plant is American Arborvitae, a dense, quick-growing evergreen of handsome appearance.

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American Arborvitae 3 feet	1.50	12.00
American Arborvitae 4 feet	2.00	16.00

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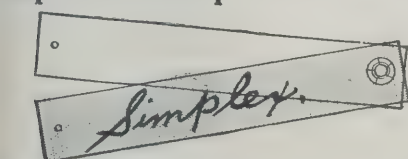
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tells about good hedge plants and other ornamentals for home ground plantings. Lists of fruit trees for every purpose are also given. Send for a copy.

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Prices at
Highlands Nursery

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\$25. per 1000

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\$1.50 per 10 \$12.50 per 100
\$100. per 1000

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\$3. per 10 \$27.50 per 100
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1 1/2-2 " clumps, budded \$2. each \$16. per 10 \$135. per 100 and up to 5 ft. clumps by the carload.

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1 1/2-2 " clumps, budded \$1.00 each, \$8.50 per 10, \$ 75. per 100
2-3 " " 1.50 " 12.50 " 10, 100. " 100

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WITH the sturdy American grown roses that I am offering this year, you can make your rose garden a constant source of joy all summer long.

Every plant throws out good, vigorous roots that insure its hardiness. Every plant is grown slowly under natural conditions and thoroughly acclimated to snow and frost. All of them are

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They are of a quality which I know to be distinctly superior to that of roses budded on other stock.

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In addition to our regular line of first class nursery stock of all kinds we have a select stock of big trees running in caliper from 3 inches up to 6, 8 and in a few cases 10 inches or more. The list includes Oriental Plane, American Ash, Catalpas, Elms, Maples, Oaks, Lindens, Poplars, Sweet Gum, Salisburia, and Tulip Trees. Catalogue and prices on application.

THE RAKESTRAW - PYLE COMPANY
Kennett Square Pennsylvania

The Apple-Tree's Visitors

(A Record taken in Eastern Massachusetts)

IN ALL my wanderings through woodlands in quest of bird friends, I have not found more pleasure than in keeping the record of bird acquaintances that came within the narrow range of one tree. That tree was near the windows of my room, and was the object of my morning and evening outlook. I chose it because of its nearness, and selected it from a row of apple trees, because it had brighter and more fragrant blossoms. The apple was a Winter Porter of fine flavor and pale gold color. The tree was old enough to hide many insects in the crevices of its rough bark. A few feet from the ground its trunk divided into five spreading branches that reached within a few yards of the two houses that stood on either side. How many birds visited my tree I cannot even guess, but the large number I saw, no less than the various kinds, greatly surprised me, because of the nearness to dwellings and to the street.

I began making my record the latter part of April, and the first bird of which I made note was the Myrtle Warbler. I had seen him a few days before in the horse-chestnut tree at the other side of the house, and had thought that he would soon fly farther north to build his nest, but he came to my tree again in May, and much more to my surprise visited it in August. I had thought that he was enjoying the cool glades of the Maine woods or less favorite Canadian haunts, while I was spending the hot August days in a Boston suburb.

On May 7, a Black-billed Cuckoo came to my apple tree. I had never seen a Cuckoo before. He was not at all disturbed by my presence at the window, but searched diligently for insects, giving me only an occasional glance.

On May 17, a beautiful Scarlet Tanager and his olive mate flew through the branches of the tree. I had never seen a Tanager in our orchard before. Already my tree was becoming noted, or else a limited range had sharpened my powers of observation.

The busy little Black and White Warbler crept about the branches of the tree to seek out insects. Of course Robins and Sparrows were frequent visitors, and especially welcome was Robin Redbreast with his morning carol and evening twitter. The Orchard Oriole came once; and the Baltimore Oriole with his mate were occasional visitors. On a rainy day a Rusty Blackbird perched on a branch near the house.

After many rainy days the sky cleared, and what was my delight to see my tree full of birds! I suspect that it had proved to be a sheltered place, between the two houses, from the gentle breeze that had risen after the storm. I can hardly tell how many or what kinds I saw within a few hours, for my scanty knowledge was taxed by this sudden onrush of bird friends. Several birds of a kind I had not seen before were perching now here, now there, on the limbs of the tree. They were probably Flycatchers. A Yellow-breasted Vireo darted in and out among the leaves again and again; and a strange little bird—at least a stranger to our orchard—came near several times, with an erect tail and a saucy turn of the head. I suspected he was Master Wren, a frequenter about many houses. The Robins and the Sparrows came plentifully, and before long I heard a faint "Chink," and hurried to the window to find that my pet "Downy" of the orchard had also found my tree a sheltered place from the wind. Only a few days before,

a loud "wick, wick, wick," from his cousin, the Flicker, had called me around the corner of the house just as he flew out of the tree.

Golden Robin and his mate came often in the morning. Several Grackles came also, some walked about on the lawn, a few perched in the tree. One settled himself in a comfortable place, and stayed there for several hours. I went close to the window and gave a low whistle to call his attention. He appeared not to notice my calling, but a Robin perched nearby gave strict attention and bent his head in a listening attitude. I have often noticed that the Robin more than any other bird seems cognizant of the human voice.

Many more birds than I saw must have come to my apple-tree, but it seemed strange that my favorite, the Goldfinch, should never once favor me with his presence there, though he would hop about in the top of my birch-tree on the other side of the house, and sing sweetly for hours at a time. I suspect that the seeds which he found in the garden nearby were more attractive to him than the insects of the orchard.

At the end of the summer I felt that my observations within the narrow range of one tree had given me more enjoyment than many wanderings here and there.

Framingham, Mass. M. M. HIGGINS.

Sweet Pea Mixtures in Balanced Quantities

MANY of the "mixtures" offered by seedsmen are not prepared with much thought as to the balance of colors or pleasing effects.

If we grow separate colors side by side, we generally grow about the same number of feet of each color. In this way we have quite a large assortment of the most popular colors for an attractive display. But when we start cutting the flowers for mixed bouquets we see how unbalanced our colors really are because some overwhelm the others.

White is the foremost color in every good complete mixture and constitutes the basis. Colors like cream, light amber, slightly tinted, and white delicately edged varieties, while very similar in general effect cannot take the place of white.

The next in importance are those of slightly deeper color, but of practically the same intensity. These comprise light pink, blush pink and cream pink, also light blue, light lavender, soft lilac and soft mauve. Still another color group is made up of colors which are more striking, as they are more intensive. Naturally, we need less of each of these to give the mixture the proper appearance. Pink (including lavender pink and salmon pink), rose (including rose-carmine and deep rose pink), and medium blue (including lavender and azure blue) belong to this class and should be represented in equal volume.

There is still another group, the colors of which are deeper than any considered heretofore, but of which the same quantity of seeds should be added. These are scarlet, orange and deep cherry—the very colors that lend life and brilliancy to every bouquet.

In addition there are four classes of dark shades of lesser importance which give the mixture a greater variety but should be used sparingly because of the overwhelming color contrasts which they create.

Dark flowers in a bouquet of lighter shades are decidedly more conspicuous and it is logical therefore to use less of them.

(Continued on page 202)

BIG SHRUBS



THE SKY-BLUE ROSE OF SHARON

For Immediate Effect

WE have an exceptionally fine stock of exceptionally choice Shrubs, in large sizes—5 feet and more. They are not over-grown, however, but particularly well-grown—distinctively “Meehan Products.” They have lived a different life from the ordinary run of shrubs—have had more room, more care, better cultivation. They are ideal for new plantings on old places, for screens to hide unsightly buildings or views, or for quick results in any location. We can make especially low prices on large quantities. Here are a few rare and unusually beautiful varieties:

- The Sky-Blue Rose of Sharon** (Hibiscus Syriacus Coelestis). Flowers azure changing to lavender blue. A charming shade. August.
- Storax** (Styrax Japonica). Loveliest tall growing, hardy shrub. Flowers pure white. Elegant foliage. May.
- Cork-winged Spindle Bush** (Euonymus alatus). Unique and always attractive. Gorgeous Autumn foliage. Brilliant scarlet berries.
- Cornelian Cherry** (Cornus Mas). Yellow blossoms in April, followed by bright red berries.
- White Fringe** (Chionanthus Virginica). Rich, bold foliage, unusual fringe-like blossoms. May.
- Pink Deutzia** (Pride of Rochester). Superb specimens of this elegant, useful and popular shrub. June.
- Smoke Bush** (Rhus cotinus). Misty, smoke-colored flowers in June. Gorgeous foliage in Autumn.
- Pink Spiraea** (S. Billardi). Spikes of bright pink flowers in July and August. Fine habit and foliage.

These are only a few of the multitude of really good things described and priced in our

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Broad-Leaved Evergreens

Hicks' Rhododendrons

These are not newly imported plants but have been growing in our nursery for several years. They are doubly valuable because they have become acclimated to our growing conditions and have developed wonderful root systems many times larger than those of freshly imported plants. From the countless number of varieties, we have selected a list of forty kinds, representing those of proven hardiness and of the clearest colors. For foundation plantings Rhododendrons are unexcelled. The heavy, dark green foliage is persistent all the year round and the immense, showy flowers cannot be duplicated by any other shrubs. Every plant is guaranteed to grow and if they fail, we will replace them. 1-5 ft. \$1.25 to \$15.00 each; \$11.00 to \$140.00 per 10

Mrs. —, president of the — Garden Club, said, "We suggested to Mr. Hicks that he adopt 'Color Standards and Color Nomenclature' by Ridgeway and he did so immediately."

Another lady who is author of several authoritative books on landscape gardening, said, "Hicks' catalogue has the best color descriptions."

Another lady said, Rhododendrons would be beautiful if people did not make such inharmonious color combinations."

You will find Hicks' catalogue describes colors accurately stating which are clear red and which have a purple tinge or magenta. You can study autochrome plates of them at the nursery or you can buy the plants in full bloom.

HOLLIES

American Holly (Ilex opaca)

One of the most ornamental evergreen shrubs or small trees with handsome glossy foliage and attractive scarlet red berries. Several plants should be obtained to be sure to get the berry-bearing form. Why not grow your own Christmas Holly?

1 ft. high	\$.75 each	\$ 6.00 per 10
2 " "	1.50 "	12.50 " 10
3 " "	3.50 "	30.00 " 10

Japanese Holly (Ilex crenata)

One of the most valuable of Japanese introductions. A low evergreen shrub with lustrous light green leaves. The abundant black berries are very pretty. The Japanese Holly is suitable for planting in formal gardens, as a hedge plant, or as a foundation planting it serves admirably.

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If you use HUMUS try the ideal Natural Humus—coarse, fibrous and in an active state of decomposition. The HUMUS that is different and always reliable.

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504 FIREMANS BLDG.,
NEWARK, N. J.

REMEMBER THE NAME—COMMERCIAL HUMUS

(Concluded from page 202)

The four colors to be used with discretion are dark red, dark blue, purple and maroon.

Striped and bicolor varieties are to be used sparingly. The square below gives you my idea of a complete, well balanced mixture:—

5 Parts White	2 parts scarlet
	1 part dark blue
	1 part dark red
	1 part purple
1 part cream & edged	1 part maroon
3 Parts Light Pink	2 Parts Pink
	2 Parts Rose
3 Parts Light Blue	2 Parts Medium Blue

In making a mixture I used the following varieties, arranged in their groups:

White: King White, Constance Hinton.

Cream: Primrose Spencer, Isobel Malcolm. *Edged:* Dainty Spencer, Mrs. Townsend.

Light pink: Charm (blush pink) Florence Morse Spencer, Elfrida Pearson. *Cream pink:* Mrs. Routzahn, Mrs. Hugh Dickson, Mrs. C. W. Breadmore, Margaret Atlee. *Light blue:* Alfred Watkins, Pearl Gray, Orchid, Aster Ohn.

Pink: Beatrice Spencer, Countess Spencer, Illuminator (cherry pink). *Rose:* George Herbert, Decorator. *Medium blue:* Wedgwood, Tennant Spencer.

Scarlet: Scarlet Emperor. *Orange:* Helen Grosvenor, Thos. Stevenson. *Cherry:* Fiery Cross.

Dark red: King Edward Spencer, Vermilion, Brilliant, Orion, Arthur Green. *Dark blue:* Blue Jacket, Jack Tar. *Purple:* Purple Prince Spencer, Royal Purple. *Maroon:* Othello Spencer, Nubian. *Striped:* Aurora Spencer (orange salmon on white) Empress Eugene (light lavender on white), Senator Spencer (chocolate on heliotrope).

Naturally the same plan for color mixtures could be adapted to other flowers to be sown in mixture.—*Seedsman.*

Concerning Lavender Sweet Peas

ALL lavender and blue varieties of Spencer Sweet Peas have seeds which are more or less spotted and wrinkled. This is typical to this color class and has nothing to do with the germination power. One ounce of a lavender or blue variety contains about half as many seeds again as a variety with smooth medium-sized seeds.—*Seedsman.*

Renewing an Old Strawberry Bed

AN OLD strawberry bed—that is, a bed three or four years old—can be made to bear fairly well by the following process.

As soon as picking season is well over, cut the tops from the plants and weed the bed thoroughly. Pull out ruthlessly any plants that are found between the rows, cut off all runners, and cultivate between the rows. I do not burn over the old tops, as I have not been successful with that method though it is often recommended; but I rake off the rubbish and burn it elsewhere. Cultivate until fall, and after the first frost, cover the bed lightly with well rotted manure and straw. If the bed is not too large, it pays to drop the manure between the rows and cover the plants with straw beside. In the early spring, rake off the straw, work in the manure, and mulch between the rows with some clean mulch—the straw may be used, or I find lawn clippings fine, as they keep down the weeds and make a nice clean bed for the strawberries to rest on. When the blossoms come, water the bed with nitrate of soda and water, about a tablespoonful of soda to a pail of water, putting it about the roots, not on the crowns. This method of treating an old bed pays, giving one a fair crop of berries while waiting for the new bed to get started.

New Jersey.

M. T. RICHARDSON.

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L. Auratum "Japan's Golden Queen." Immense blooms with a golden band through the centre of each white petal. 20 cts.

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L. Superbum. Our most gorgeous native lily. Oriental in the beauty of its leopard skin petals of brilliant deep orange with dark spots. Extra size. 20 cts.

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Nitrate of Soda will give it a quick and robust start. 200 pounds to the acre or 2 pounds for a plot 20 x 20 feet is proper feeding for young plants. Help others as well as yourself to better fruits and vegetables. Address

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NURSERY STOCK. Fine canvassing outfit FREE
Cash Commission Paid Weekly. Write for terms
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CHINA
CEMENT
STANDS HOT AND COLD WATER 10¢



PATENTED—JAN. 23rd, 1917

Made of Heavy Galvanized Steel

Self Watering—Sub Irrigating
waters the growing plants from the bottom making longer roots and better plants, leaving top soil mealy and loose. Pour water in the tube once a week. Perfect air circulation and drainage.

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Savo Flower Boxes are leak-proof and rust-proof. No transplanting—you can move Savo boxes indoors or out when desired and have beautiful flowers and plants the year round.

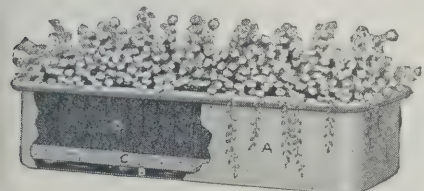
For Windows Porches Sun Parlors

Six sizes—artistic in design and beautifully finished in aluminum, Gilt or Dark Green.

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SAVO MANUFACTURING CO.

Dept. B, 39 So. LaSalle St., Chicago, Ill.



A—Outside body of box. B—Water in the double arched reservoir. C—Layer of coarse gravel over perforated arches. D—Soil above with growing plants.

Handy Box of Plant Labels

Assortment complete, from 3½ inch tag label, copper wired, to 10 inch garden label, 300 in all, with marking pencil; packed in a neat, strong box for mailing. Needed in every garden. An appropriate present to a friend interested in gardening. Price \$1.10 postpaid. Beyond the fourth zone add fifteen cents.

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Uncrowded Profession! Inexpensive! Easily mastered. Begin earning three weeks after you enroll. Write to-day.

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20 South Main St., Newark, New York

QUALITY RED POTS

Made of best material by skilled labor, uniformly burned and carefully packed.

Famous "Moss-Aztec" Ware includes Azalea Pots, Fern Dishes, Hanging Baskets, Lawn Vases, etc. Write for catalogue and name of nearest dealer.

PETERS & REED POTTERY CO.
So. Zanesville, Ohio

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Real Bronze Colonial Designs From \$3.50 Up

For Bird Baths, Garden Benches, Fountain Bases and other garden requisites.

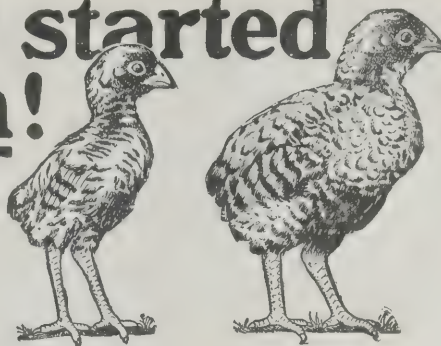
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The M. D. JONES CO.
Portland St. Boston, Mass.

Send for illustrated Price-List



They started even!



One was fed grain—the other

Purina Chicken Chowder and Purina Chick Feed

Grain feed contains an excess of heat and energy elements, and is short on bone, blood, feathers and lean meat forming elements.

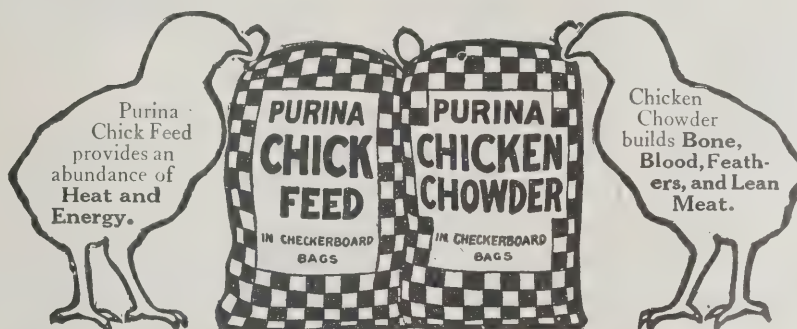
A chick fed only grain develops only as fast as the least quantity of these elements is supplied in the feed. Purina Chicken Chowder provides the elements deficient in grain feed, and develops the chick to the maximum. When fed with Purina Chick Feed, as directed, we guarantee

Double development or money back

during the first six weeks of a chick's life. If your dealer doesn't sell Purina feeds (in checkerboard bags) send us his name and get our

64-page Poultry Book FREE

Ralston Purina Mills, 829 Gratiot Street, St. Louis, Mo.



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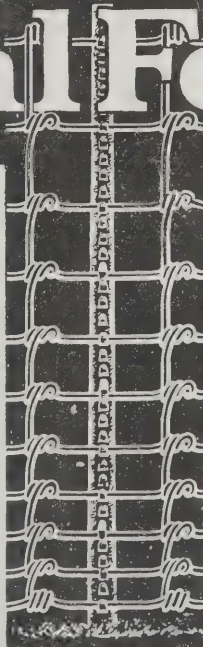
Made of big, strong, stiff steel wire, with continuous stay wires, from top to bottom wrapped around each horizontal wire and securely held by

the Royal loop, giving great strength and resiliency.

American Steel Fence Posts last a lifetime. Hold fence secure against all conditions.

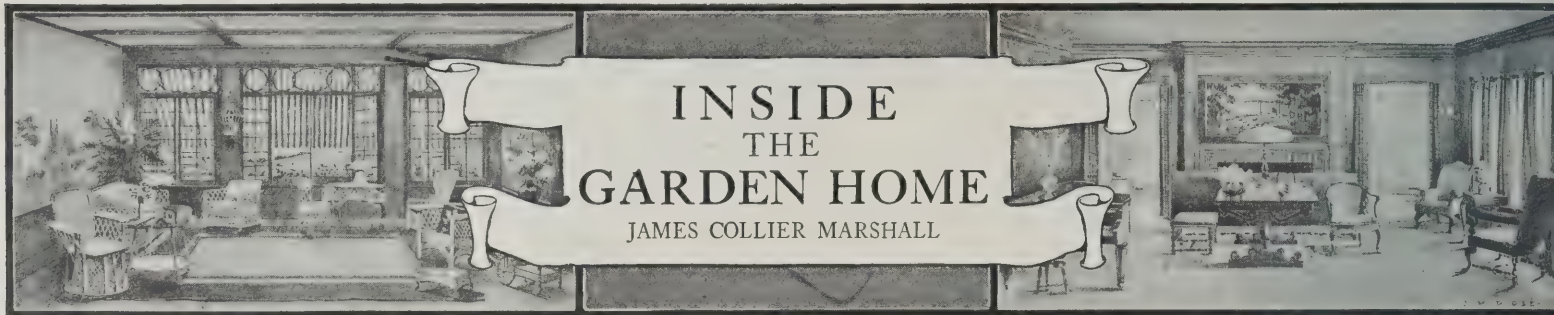
Sent Free—Our Book, "How to Build a Fence."

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ARTFUL AIDS TO SERVICE

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.



Brand new is this cake stand with triple top trays. In mahogany with inlay, \$10

serve. This sleight of hand is accomplished by pressing down with the thumbs the two steel springs upright beside the handles when the legs, folded beneath, are released. Better still, when tea is over a similar operation brings them back to their original position and the journey pantryward may be begun without further ado.

More simple, but equally useful, is the mahogany table at the lower right which folds, with the leaves upward, into a quite narrow space, the leaves being securely fastened underneath.

Nests of tables are, of course, quite old friends although most of them are of such fragile build or delicate finish as to limit their usefulness. These, however, are quite sturdy, generously proportioned with solid under-standings yet of light weight.



This wise little tray table knows when to stand on its feet and when not to. Of mahogany it costs \$17.50

ONE of the hardest things to arrange for the small house is ease of table or tea service, since limited space is likely to induce a cluttered appearance when small tables are brought in for this purpose. Hence any new ideas on this subject are worth consideration.

With space saving ever in mind, the mistress who has but one maid to serve tea will be delighted with the service tray table at the lower left hand of the page. Here is a question solved satisfactorily. This table is really a tray that may be fully dressed in the



A dish of black Japanese lacquer, with red gold leaf decorations, makes an admirable sandwich tray and is equally good for fruit

Beyond these sensible qualities they are of a most comfortable height. One would not suffer the "eating off the mantel" sensation while taking refreshment. Then, too, they are of a size and so well fitted as to make their use possible in a living room for other purposes. Stained a fresh green and decorated with rough Chinese carvings they are very good looking.

The baskets seen here are very interesting since they are designed for transporting sandwiches and other edibles to picnic tea or for automobile luncheons. Their compact-

ness recommends them at once, both of the right hand ones having two compartments

of quite sizeable proportions. The painted basket is intended for fruits and provides that required air and an upright position and is strong enough to be really useful for perishable foods.

Not inappropriate and I hope interesting will be a word here regarding the chairs shown at the upper right of this page. Designed for breakfast room use although perfectly satisfactory for the small dining room

these chairs, there are two arm chairs, are copies of ones brought from Friesland in Holland. The delicately and quaintly painted Dutch scenes on the slats are done in rich red, gold and brown, which colors also are sprinkled in dots over the deep cream ground. With the table they make a most effective dining room



From quaint Friesland comes this chair to make gay an American breakfast room



When my lady goes a picnicing such baskets as these are mighty handy and sensible, being compact and light weight. From left to right, they cost \$6.50, \$5.00, and \$6.00



China has given us practical aid in sending this nest of green tables, that can be used for many purposes. Price, \$25.00



Every woman and many men know the value of a simple folding table. This \$10.00 mahogany one has slightly curved legs

• UNIVERSAL • PORTABLE • SHELF •
• PATENT • APPLIED • FOR •

FIG. 1
FIRST • DRIVE • A • NAIL

FIG. 2
• THEN •
• HANG • SHELF • ON • NAIL •

FIG. 3
• THEN •
• PULL • BOTTOM • • •
• FORWARD • AND • SHELF •
• IS • READY • FOR • USE •

FIG. 4
• THE • SHELF • OF • A •
• THOUSAND • USES •

FIG. 5

A novel device within this metal shelf holds it in proper position. SIZE 7½ inches square. Weight one pound. Support a weight of 20 pounds or more.

New, novel, useful and practical, in demand among all classes of people everywhere.

Price: Green, Brown or Black, 25 cents each.
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Postage on one shelf to any part of the world, 12 cents

AGENTS WANTED, write for liberal proposition.

THE GEORGE W. CLARK CO.
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RE-MOV-ABLE STEEL FLAG POLES AND CLOTHES POSTS

No holes to dig. Strong steel sockets driven. All high-carbon galvanized steel. Slip easily into sockets, removable in a moment. Don't disfigure lawns, no decay, last life time. Adjustable tension hook on clothes posts make clothes hanging easy.

Tennis Net Posts; Back Stops; Fence Posts on same principle.

Ask dealers or write us for booklet A

Milwaukee Steel Post Co.
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CHEAPER THAN WOOD

Marsh-made wood trellises set off to advantage the beauty of your flowers and vines.

MARSH (wood) TRELLISES
Stand years of exposure

Made of best Michigan White Pine, painted green. Free from knots or blemishes. A Marsh Trellis would surely beautify some place around your house or garden. Send for catalogue. Then see your dealer.

MARSH TRELLIS CO., Westboro, Mass.

KELSEY HEALTH HEAT

Dining room in the old Patrick Henry House, Brookneal, Va. Although the fireplaces have been carefully preserved, every room is made comfortable by Kelsey Health Heat.

Then and Now

NOTWITHSTANDING the back chilling, face burning fireplace method of heating in the days of the Revolution, folks were then a sturdy lot, notably free from colds and akin troubles.

They had ample fresh air in their homes.

There was no way of preventing it. The fireplaces ventilated while they heated.

So does the Kelsey Health Heat.

Not only does it heat with large volumes of freshly heated, fresh air; but it automatically mixes with its freshness, just the right healthful amount of moisture.

That it is positive in action and economical in operation, there are abundant proofs.

Let us send you some interesting printed matter that will give you some conclusive facts for comparing Kelsey Health Heat with all other heats.

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Your choice for \$1.25. 3 of either group for \$3.50
A 14 roomed Martin House for \$20.00.

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Garden Accessories which are suitable and just the things required to lend cheer and pleasure to the surroundings of a home. When writing enclose 20c stamps and ask for Pergola Album, H-30.

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Attract the Birds



to your lawn by giving them plenty of water for bathing and drinking in a

SHARONWARE BIRD BATH

designed upon humane principles. The birds bathe in water from $\frac{1}{4}$ to 2 inches deep without risk of drowning. The bath empties itself every twenty-four hours, thereby making it sanitary. 17 in. across, 6 in. high, weight 30 pounds. Made in various colors; decorative, artistic, practical.

Price, \$5.00, F. O. B. New York.

Same bowl on pedestal: total height 39 inches, \$15.00 F. O. B. N. Y. Send for descriptive price-list of window-boxes, flower-pots, jardinières, garden benches, etc.

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Make your bird garden "different" with home-made houses designed by A. Neely Hall, pioneer bird-house builder. Birds will return to them year after year. You make your garden. Why not its bird houses? Your boy or neighbor's boy can help. A. Neely Hall's 25 copyrighted tell-how plans, used everywhere in school and community campaigns, hints for a boy's factory, membership in "American Bird-House League," certificate, badge, etc., sent for 25c in coin. Circular for stamp. The Put-Together Handicraft Shop, Dept. G, Elmhurst, Ill.

Beautify Furniture

Protect Floor and Floor Coverings from injury by using

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ONWARD MFG. CO.
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Lice-Proof Nests

WRITE QUICK SPECIAL OFFER

Nests won't cost you 1c
Your hens will pay for them
in more eggs



You will get 20 to 50 per cent more eggs with

KNUDSON

Galvanized Steel

Lice Proof Nests

These wonderful sanitary

nests last a lifetime. Satis-

faction—Unlimited Guarantee.

The illustration shows

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Cost Less Than Wood Nests.

Don't Wait. Make Big Money on Poultry. Write

Over 25000 in use. Knudson Mfg. Co., Box 269, St. Joseph, Mo.

Summery Flower Boxes and Other Things

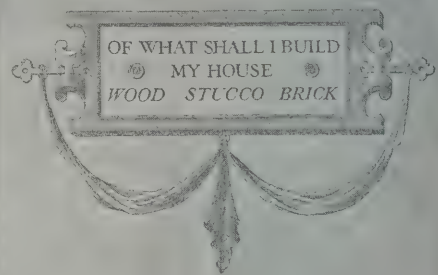
THE shops specializing on flower boxes and a hundred things for summer use in house, porch and garden are now putting forth their best efforts in this direction with the happiest results.

Boxes for growing plants lead in number of designs offered and all are interesting. Those pictured here are perhaps the best of the smaller ones.

Cut from the piece of wood that forms the back of the box the little girls of the upper designs are hand painted.



The square one at the bottom is, as will be guessed, intended for plants to stand on the porch floor. It costs \$8.50, while the upper ones are \$6.00.



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House Beautiful
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BOSTON

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3 Park Street, Boston.

G. M. 4-17

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Safety-First White Clover Seed

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from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar trouble and gets horse going sound. It acts mildly but quickly and good results are lasting. **Does not blister or remove the hair** and horse can be worked. Page 17 in pamphlet with each bottle tells how. \$2.00 a bottle delivered.

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SUPERINTENDENT seeks position on first class private estate. 15 years' experience with everything pertaining to same. English, age 30, married. Please state wages. Box 118, The Garden Magazine, Garden City, L. I.

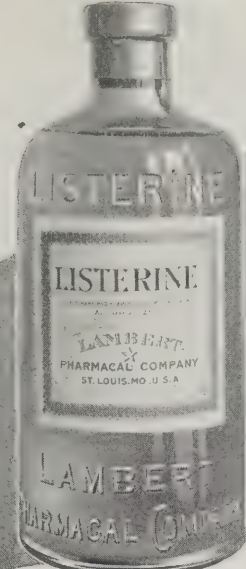
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The Safe Antiseptic

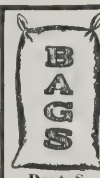
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The only Bird-Houses that actually attract the Birds because they supply the natural nesting conditions. The only Bird-Houses that really protect and conserve bird-life. Scientifically constructed. The inner nesting chamber, entirely independent of the outer walls, maintains an even degree of temperature and moisture—an absolute necessity for successful hatching—whether the house is placed in the sun or shade. Prices from \$1.50 to \$36.00.

Reiber Bird Homes, Feeding, Watering and Supply Stations are the result of the life-long study of E. H. Reiber, "The Bird Man," and are protected by United States Patent.

Designing and executing of Bird Gardens a specialty. We will gladly send you our book describing these exceptional Bird Homes.

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We Pay The Highest Cash Prices for

OLD BAGS or BURLAP

of all kinds—Any Quantity

WE PAY THE FREIGHT

Become our Agent, buy old bags for us

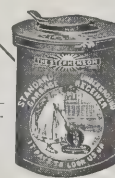
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20, 40 or more acres, in vicinity of Fresno, San Joaquin Valley, heart of winterless California, greatest raisin belt in world; now paying good profits; houses, barns, fences, live stock—everything ready; crops in many instances paying better than \$100 an acre. \$2,500 will buy a \$10,000 place, with long time on balance. Your farm income will take care of future payments. Only limited number of farms can be had on these terms, so write to-day. I will gladly put you in touch with those having farms for sale.

C. L. Seagraves, Industrial Commissioner, AT & SF Ry. 985 Ry. Ex., Chicago



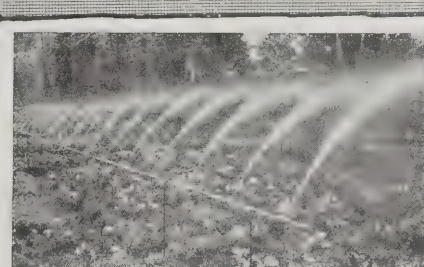
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Underground Garbage Receiver

installed at your home in the early Spring Clean Up—means less danger from infantile paralysis germs. Eliminate the dirty garbage pail.

Sold direct. Send for circular
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DON'T let all the painstaking work that you're going to put into that garden of yours this Spring; all the seeding, hoeing and back-aching—go for naught. Protect it against the dry weather days that come along and shrivel up your flowers or vegetables.

A Skinner System Sprinkling Line is your sure insurance against such a happening.

No trouble. No bother. Just turn on the water and it does the rest. Thoroughly and uniformly waters your garden with a fine mist-like spray. Does not pack the soil. Nor injure the finest foliage. Easy to put up, take down, or change location. A few minutes' attention waters your garden. Fifty foot line fully equipped costs \$13.75. Waters 2,500 square feet. For other lines add 25 cents a foot extra. For \$14 we can equip lines with an Automatic Turning Device, which will move the spray from one side to the other and then itself shuts off the water. Time of watering under full control. Send for full information about this Skinner Sprinkling System.

THE SKINNER IRRIGATION CO.

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SKINNER SYSTEM OF IRRIGATION.



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This sanitary poultry house is an egg record breaker for 12 hens. The setting coops keep the hens by themselves while setting. The pigeon house (with its flight cage) is fitted complete for 10 nests. Hodgson poultry and pet stock houses are the most scientifically constructed on the market. Made of painted sections that can be easily bolted together by anyone. Send for illustrated catalogue.

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LAWN GRASS SEED

"Best on Earth" is prepared by an expert with a thorough knowledge of the grasses indigenous to most soils within 1,000 miles of New York and is composed of grasses of the highest quality, tested for purity and germination.

For \$1.00 we will send you 2½ lbs. (enough for a plot 25x40) Staigreen Lawn Grass Seed, the purest, highest vitality lawn grass seed known.

5 lbs., \$1.75; 25 lbs., \$8.00; 100 lbs., \$30.00.

Advice in regard to mixtures for special locations, treatment of soil, fertilizing, etc., freely given. Call at our store or write to us.

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Giant Mastodon Pansies

A marvelous blend of rich and most pleasing colors; flowers of gigantic size. Pkt. (250 seeds) 25c; 5 pkts. \$1.00.

Gladiolus Mrs. King

160 Bulbs for \$1.00

Small but vigorous bulbs that will bloom this season. Will delight you. 160 for \$1.00, prepaid. Catalogue Free.

J. D. LONG, Grower

Boulder

Colorado



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Weatherproof Garden Labels
Permanent, neat, not too conspicuous,
will last for years

The holder is made of rust proof iron galvanized and japanned green. The card is of celluloid protected by a cover of mica. Easy to mark. Writing will last indefinitely but may be erased when desired and the label re-marked as often as necessary. Excellent for flower beds, useful for marking positions of perennials, bulbs, etc. Fine for roses, shrubs and peonies in formal gardens. Useful also in marking vegetable rows. 18 inches long.

No. 10, card size 2½ x 1½ inches, 15 cents each
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Glass Cloth

A transparent waterproof fabric, guaranteed to generate about the same warmth and light as glazed sash, or money back. For all forcing purposes. Sample 3x6 feet. 50c. prepaid.

PLANT FORCERS.

TURNER BROS., Bladen, Nebraska

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For direct personal service to the individual reader.
Ask your questions.

Trimming Privet Hedges and Flowering Shrubs

SHOULD a California Privet hedge be trimmed flat on top or rounded? What is used as a guide for the trimmer to enable him to keep the hedge straight? How should flowering shrubs be trimmed?—E. J. C., Mich.

—PRIVET HEDGES can be trimmed either way, flat or round topped. It is merely a matter of personal preference, but where there is much snow in winter it is better to trim the hedge with a round top as it reduces to some extent the danger of breakage by snow. A good hedge trimmer simply uses his eye as a guide. Occasionally you will see a man use a line but this is because he does not seem sure of himself. There is one invariable rule about pruning: Prune if at all, immediately after the plant is through flowering. Pruning, merely for the sake of cutting back, is wrong. Cut out at the base all the old wood that has flowered. By doing this you encourage the plant to put vigor into the new growth.

French Doors Instead of Draperies

—WOULD it be proper to place French doors in place of draperies in the doorways between the living room hall, and the library, dining room and sun room? If so, what style would be the most appropriate and would it be necessary to make transoms over the doors?—W. M., New York.

—THERE is no doubt that the substitution of French doors for hangings would improve the living room and open up the whole first floor very nicely. As to style, these had better be the straight rectangular, small-paned type, two doors to each opening, hinged to open out upon the living hall. We would not use transoms over these doors, but would have the doors the same height as others in the room, closing the space over the head to the ceiling as a plaster wall. In the opening to the sun room, being twelve feet wide, I would take out the grill work and make this a plastered wall over the top of two pairs of French doors; or there might be two stationary glazed panels to match the doors and two doors in the centre.

Cheap Farm Land

ARE there any \$10 an acre farms for sale? I have been successful in raising hens in my back yard and, while I have only a very limited capital, I want to buy a cheap farm and start in the poultry business.—H. D. M., Iowa.

—THERE are probably farms to be bought as low as \$10 per acre in several parts of the country, but the chances are that these are of such a type and in such a condition that they will call for expert knowledge and extremely hard work if they are to be successfully cultivated. We would not want to attempt to suggest any particular farm but you can obtain descriptions of a good many by writing for information and assistance to the State Departments of Agriculture of New York at Albany; Massachusetts at Boston; Rhode Island at Providence; of Pennsylvania at Harrisburg; Virginia at Richmond; Ohio at Columbus, and New Hampshire at Concord. Some of the railroads such as the New York Central at Grand Central Terminal Building, New York City, and the New England Lines, with offices at Boston, can also supply descriptive literature about lands along their lines.



DIANA

Dahlia Novelties

of exceptional character, at exceptionally moderate prices were the subject of our advertisement on page 77 of the March issue of The Garden Magazine. Please refer again to that page and its unusual "Special Collection Offer." Write for Free Catalogue.

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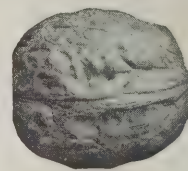
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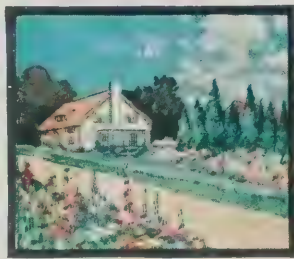
The GARDEN MAGAZINE

MAY 1917

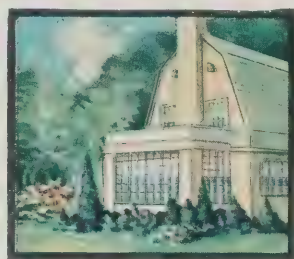
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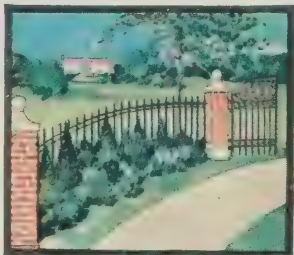
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No. 1. For blotting out the objectionable, nothing so happily combines prompt results with pleasing effects, as an evergreen screen. No matter how utilitarian its purpose, it decoratively "fits into the picture."



No. 2. Don't lose sight of the surprising range of color gradations in present day evergreens; or forget the satisfactoriness of the dwarf kinds when mingled with the others. For foundation planting, they have no equal.



No. 3. In a desire to have your entrance imposing, and even a bit restraining to possible intruders; don't lose sight of the forbidding effect it also has on your friends. Plant evergreens. Let them lend their greeting the year around.



No. 4. Say what you will, it's the hardy flowers, linked as they are with our grandmothers and Aunt Betsie, that give us the keenest joy. Seldom have we had so many good things to offer you. The Helpful Hint Booklet contains many of them. Send for it.

Four Timely Memory Joggers About Evergreens And Our New Hardy Flowers

No. 1

Behind the evergreen screen in the first illustration, you can just catch a glimpse of a building. It might be a stable, a garage or even a carelessly cared-for home; or mayhap just plain "undesirable neighbors."

No matter who or what, the evergreen screen effectually shuts out the objectionables all the year around. It is a form of "spite fence" that beautifies your grounds and to which the "screened parties" can hardly take exception.

Just now we have a goodly lot of screen size trees for immediate effect. Or smaller ones, with most promising grow-up-possibilities. See Help Hint Number Three in our Helpful Hint Booklet.

No. 2

To take away that barefooted look of foundations, and link the house *naturally* with the grounds; there is nothing quite so satisfactory as evergreens, in their multi-colored foliage effects. Of course, they cost more than shrubs, which is as it should be. Shrubs serve their full purpose for only a *few months* of the year. Evergreens are contributing their beauty the *entire year* about.

Help Hint Number One in our Helpful Hint Booklet fully describes foundation planting of evergreens.

No. 3

You know how particular the solicitous hostess is, that the first impression as you enter, shall truly reflect the home, as well as make you feel genuinely welcome to it.

The same thought is merited for the entranceway to your grounds.

Take away that impression of austerity that bareness conveys. Turn it into a cheering welcome by a bit of well thought out evergreen planting. Summer or Winter, they will be always there, waiting to greet you and your guests.

See collections No. One or Two in the Helpful Hint Booklet.

No. 4

No matter how many hardy flowers you may have; or how crowded you are for room; there is something about the delights of gardening that won't let you rest without each year adding some choice new things.

It happens that this year we have a most unusual collection of new ones, most of which are gold medal winners in the London Show.

All of them are rooted from cuttings and pot grown. The ball of earth shipped with them, insures their quick transplanting success.

In Oriental Poppies, we have six new ones. A collection of two each, of the six, you can possess for so little as \$3.50.

There are also 6 truly wonderful Larkspurs. \$7.50 buys two each, of them all.

Likewise, Heliopsis (Hybrid Sunflowers 2 to 3 feet) in unusual colorings and formations; charming for cutting—\$5 for 12, which includes 2 each, of 6 kinds.

Verbascums, in primrose, buff, apricot and bronzy yellow. Here indeed is a find. They remind you of the stately field Mullein, very much "dolled up." \$3 buys 8; two each of the four kinds.

Helpful Hint Booklet

On its cover is a real delightful old timey flower garden in full colors, made from one of Wallace Nutting's famous pictures.

On every page is a help hint for some specific planting problem.

No lengthy descriptions. No staggering Latin names. Ample information in tabloid. Prices for separate items or in collections.

You will find it a short cut, happy solution to the most of your planting perplexities.

You and your friends are heartily welcome to copies.

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The Garden Magazine

VOLUME XXV

MAY, 1917

NUMBER 4



EVERY GARDEN MEANS A HOME

AMONG OUR GARDEN NEIGHBORS

On the Lookout.—There is nothing that I enjoy more than the exchange of experiences of other readers. It brings out many a point that is not usually found in professional articles. For what professional can foresee all the scrapes we amateurs get into? Thus I found that some of my climbers do not bloom or shed their blossoms before they open and then I see some one in the same fix and find that it is sour soil that does it. Out with the lime and we try it. I delight in scanning the advertisements of the nurseries being always on the lookout for something suitable and out of the ordinary.

What shrub more beautiful than the Swamp Honeysuckle, a close relative of the Azalea, but hardy and growing in our Jersey woods?

How many readers spend sums of money for Rhododendrons which sometimes fail to grow for want of care and knowledge of their requirements? Yet right at our door is the Laurel, first cousin of the Rhododendron, hardy and grateful if you plant it in the shade with plenty of leafmold. Just go across the lot as I did last fall and get all the bloom in spring that you want. Possibly others find some other shrubs in their neighborhood that are just as accessible and handsome in appearance. I find the Holly is the hardest thing to transplant successfully.—*L. A. Malkiel, New York and Keansburg.*

Is King Humbert the Best Canna?—I have tested fully one hundred varieties of Canna and have visited the Canna fields of two of the largest producers of these plants for sale critically examining the several hundred varieties while in flower with the result that I picked out King Humbert as the most magnificent dark-foliated, red-flowered variety, of the whole lot. I planted a clump of it on each side of the steps leading to my front door. As the house is built of light cream-colored brick the contrast of big bronzy leaves and brilliant, red-flowers (most of them more than four inches across) the plants were very striking. They gave a strong emphasis to the front of the house visible the moment one turned the street corner a block away. Probably the size of the specimens was increased

THE NEIGHBORS' DUTY

THE whole world faces a shortage in food crops this year. The resources of the grain producing countries (of which America is one) will be taxed to the utmost to feed millions of people. This is not a sensational scare; it is a cold, stern fact, proved by official figures.

Every pound of food that is produced by those who have the opportunity to utilize small pieces of land for their own supply will help to relieve the general pressure. The Garden Neighbors are in a position of unusual opportunity to render practical aid because they are more or less skilled workers. They should largely raise their own vegetables, stimulate their neighbors to do likewise, and also coöperate with all local and national agencies to develop the home garden.

It is the patriotic duty of every reader of THE GARDEN MAGAZINE to contribute his or her quota in this national crisis.

LEONARD BARRON

over the normal because I made the soil very rich with poultry manure and rather friable with sand and leafmold.—*John Alexander, Illinois.*

Attractive to Humming Birds.—In the April number of THE GARDEN MAGAZINE I read a contributor's list of flowers that are attractive to humming birds. I have learned by observation that the Red-flowering Horsechestnut is very attractive to the ruby throat, and they will come to it from all directions

when it is in full bloom. I once counted upward of twenty-five humming birds in one of these trees at the same time, and it was a beautiful and impressive sight, one that I shall never forget. Those who wish to attract the humming birds will do well to plant one or two Red Horsechestnut trees where they can be seen from the porch.—*H. G. Reading, Franklin, Pa.*

White Pippin Apple.—I think this might be considered for the home garden because it is in season with Albemarle Pippin which it resembles, but the tree can be grown over a much greater area; it is not so finicky in its soil requirements and the fruit is of value for use late in the season. For home use and those in love with the Golden Russet we believe we have one of the finest strains of this variety which we have seen. The writer found it at an exhibit of the Connecticut Pomological Society and could not believe that it was a Golden Russet but became convinced that the entry was right and was later assured by the grower that he put up a couple of hundred barrels a year exactly like those shown and also received confirmatory evidence from the buyer who purchased the fruit and I realized that I had run across one of the finest things in this line and that it was worth saving.—*Samuel Fraser, N. Y.*

Concerning the "Best Pea."—In the January GARDEN MAGAZINE Mr. Kains, seems to be much pleased with Sutton's Discovery Pea.

It is true that the vine is tall and rank and the pod large but unfortunately it is not a good filler. In my test in Montana under irrigation and with ideal conditions there were about 40 per cent. of skips, hence only 60 per cent. of a full pod of peas. It might be satisfactory to the pickers who want large pods but are not so much concerned about the "peas in the pod." It may be useful in extending the picking season as it was about a month later than the first Extra Earlies, and more than two weeks later than Little Marvel.

Mr. Kains complains that the Little Marvel is hard to pull and hard to shell. If "hard to pull," this fact would indicate the robust vigor that is necessary to give a good crop under adverse weather and moisture conditions

and if hard to shell, it proves that the pods are well filled. A half filled pod gives up easily.—*C. N. Keeney, LeRoy, N. Y.*

Fruiting the Papaya in the Greenhouse.—"We have them for breakfast every morning," wrote the friend of our boyhood, in sending us the seeds from Manila, P. I. This was enough to make them interesting to us, aside from being a novelty that might be worth trying. Years before we had sown seeds from Florida, and found they germinated almost as readily as tomatoes, but had then been unable to carry them farther than the first summer. Now we had better facilities, and wanted to see what they would do. We sowed the seeds in a small box, and when the young plants were several inches high, potted them up. In a year's time they were in six-



Tropical Papaws grown from seed and fruiting successfully in a greenhouse in Pennsylvania

inch pots, and the largest were then about two feet high. We picked out two of the best and planted them together in the box seen in the illustration, where they at once made a wonderful growth, and in the fall began blooming. Fortune had favored us, for the trees proved to be mated, one staminate, one pistillate.

Curiously enough, the first half of the year is a resting period, but from July to December the growth is rapid. The staminate flowers are produced throughout the year, but during the resting period the stems of the clusters are short. During the rapid growth of autumn, the stems lengthen to from twelve to twenty inches, and the clusters are beautiful for decorative purposes, with cream-colored waxen flowers amid an abundance of buds. They last when cut, for weeks, and have a pleasing fragrance, almost too heavy at times. The pistillate flowers, borne only during the fall months, are much larger, stemless, and borne singly in the axils of the leaves; hence are very few in number compared with the abundance of the others, and having no cut flower value, are of interest chiefly as forerunners of the fruit crop.

We were disappointed when one, after another, the pistillate buds dropped off without opening. Finally one developed properly, and we pollinated it with the flowers from the other tree, and the young fruit began to grow. When it had reached the size and appearance of a May-apple or Mandrake fruit it, too, dropped off. The next season we were more successful, and three fruits were matured.

Early in June the largest began to show yellow, and soon felt mellow to the thumb; but it continued getting yellower until the green showed only in mottlings on one side, and a pronounced musky odor developed, by no means tempting. Then we picked it. When the knife went through we almost regretted our rashness, for the hollow fruit was thickly lined on its inside surface with what looked suspiciously like toads' eggs, each dark seed being surrounded by a whitish gelatinous covering. This fruit was nine inches long, and weighed three pounds.

After fruiting we removed the bottom from the box, and set the plants on one of the ground beds of the greenhouse, so they may have all the root room they desire. To our surprise we found they were far from pot-bound, the roots showing very little on the bottom of the small box.—*J. C. Galloway, Pennsylvania.*

The Opal Anchusa.—Prior to the introduction into English gardens some fifteen years ago of *Anchusa italica*, Dropmore variety, the members of this family had little claim upon the lovers of perennial flowers, but to-day there are no more beautiful plants grown than the improved forms of the Alkanet. I well remember the first appearance of the Dropmore variety at the Temple Show in London, and it was certainly the most popular plant of the year, being shown in superb form by Mr. Maurice Pritchard of Christchurch. This variety is well known in American gardens and its rich blue flowers make it one of the most striking plants of the border in mid-summer. The variety Opal was introduced a few years afterward and to my mind is more beautiful than the dark blue Dropmore. The color of Opal is a glorious pale blue, similar to that of *Delphinium Belladonna*, and during the blossoming period I do not know of any plant so singularly handsome. This *Anchusa* deserves a prominent position in every garden, and when it has become fully established, the second or third year after planting, it makes a wonderful display. The main stem rises to a height of five or six feet with numerous side branches and is completely clothed with the flower panicles. It amply repays good cultivation and should be planted in a well-drained border where water will not collect around the crowns, and after the plants have become established they should not be disturbed.—*A. E. Thatcher, Bar Harbor, Me.*

Cotton in New England.—A few years ago I sent to a friend in New England a half-matured cotton plant. Shortly afterward, I received in acknowledgment a very enthusiastic letter.

Then, I received another letter from him the next autumn. "When planting my garden last spring," he wrote, "I decided to try an experiment. I separated the seeds from one of the bolls of cotton and planted them in a bed prepared as for Petunias. This was May first. May fifth the gawky seedlings like colossal, short-stemmed *Nasturtiums* appeared. There followed a few cool nights

during which my cotton prospects were not bright. The plants turned yellow and dropped the cotyledons leaving only a small green bud at the top of the short stalk. But when June came they feathered out like spring chickens. Fuzzy growths shot out from every side of the stem.

"By the twentieth of July the plants had attained a height of 2½ feet. The funny buds (which you call 'squares') I mistook for bugs, and destroyed nearly all of them before discovering my mistake. Near the first of August the first blossom came. The first day it was pure white in color; the second, it was pink turning to crimson in the afternoon; the third day it curled up in the shape of a little doll, and fell to the ground leaving a soft green ball the size of a pea where it had been.

"Soon some of the plants had from 20 to 30 bolls the size and shape of partridge eggs. But frost came before one of them opened. I gathered several of the larger and fullest matured fruits and hung them in my study as souvenirs of my achievement. When I returned home one week later I received another surprise. Hanging from the walls of my room were great fluffy snow-white cotton bolls. I ran into the garden and the bolls upon the old plants were bursted and the buds curled back so that you could see they had made an effort to open, also. I never before saw a room so beautifully decorated as is mine, and I veritably believe the decorations will last all winter."—*Buford Reid, Ark.*

Weedy Tendencies of the Japanese Knotweed.—I notice the Japanese or Giant Knotweed listed in several of the new catalogues from several large seedhouses.

Now since its presence in the garden is a potential source of danger possible purchasers should be warned. A comparatively new importation from the Orient, the Giant Knotweed is beginning to make itself at home on this side of the ocean; it is escaping its bounds and becoming a pestiferous weed. One of the first places from which the plant has been reported as escaping is the vicinity of Chester, Pennsylvania. Since then, according to authorities whose duty it is to record the distribution of plants, it has escaped locally throughout the territory from Newfoundland to Virginia and from the Atlantic Ocean to the Mississippi River.



Giant Knotweed, *Polygonum cuspidatum*, offered as a garden plant may become a troublesome weed

Because of its underground, creeping stem habit, the Japanese Knotweed may become a vile weed. This underground stem or rootstock develops numerous buds, each of which may form a new plant; thus it creeps from the desired limits, invading the territory of more worthy plants. In the vicinity of State College, Pennsylvania, the plant has become obnoxious in several localities; I have been compelled to fight the weed each spring in the vicinity of my home. The pest is difficult to combat due to the deep-seated rootstocks, which must be carefully dug out. Cutting back the little plants as they come above ground in the spring seems to be of no avail, since numerous others are constantly appearing to take the place of those cut out. If all the plants, including the parent, are kept continually cut back for a period of at least two years, the rootstock must eventually become starved out, since green tissue is necessary in order to manufacture food. A former gardener of the Brooklyn Botanic Garden informs me that he had a similar experience with this plant.

The Japanese Knotweed is variously listed under such scientific names as *Polygonum cuspidatum*, *Pleuropterus Zuccarini* and *Polygonum Zuccarini*. It grows to a maximum height of eight feet, and is rendered conspicuous by the profusion of greenish-white flowers which appear from July to October in the form of long, slender racemes; the flowers and the resulting triangular fruits are very characteristic. The plant is readily identified by the large long-pointed leaves with peculiar bases which have the appearance of being abruptly cut off as though with a pair of shears. The noxious feature, the rootstock, is characterized by being rather heavy and woody, and studded with many large, often reddish buds, each of which is a potential plant; the rootstocks may be dug out in sections several feet in length.

On account of its possibilities of developing into a pestiferous weed, those who contemplate using the Japanese Knotweed in the spring planting should proceed with caution. Many of our worst weeds, of which the Orange Hawkweed is a conspicuous example, were originally imported into this country for the purpose of garden cultivation and escaped their artificial boundaries to enter the farmer and become sources of great economic loss to the nation. The presence of the Japanese Knotweed in the garden apparently is a menace which should not be tolerated. Our list of garden plants, which have escaped to become noxious weeds, is already far too large; it should not be added to by this new pest.—*Albert A. Hansen, Dept. of Botany, State College, Pa.*

Gordonia—Why So Little Grown?—There are many plants about which I ask myself

this question, but perhaps more frequently in connection with our native *Gordonia altamaha* than any other flowering shrub. It has a great deal of interest, both because of its period of flowering (late fall) and of its strange personal history.

Here is a shrub bearing large, cup-shaped flowers of white, with clusters of conspicuous yellow stamens resembling as nearly as anything a small single white Peony. In a



Gordonia altamaha, one of the rarest of shrubs in gardens, is a native of Georgia, but not seen wild since 1790. Flowers white in late summer and fall

specimen growing at Garden City, the flowers measure four inches across and they are produced from the end of August until the weather gets too cold in October. The specimen is now six to eight feet high and was planted in the open lawn about three years ago as a small rooted cutting in October.

It has another attraction, that is the claret-red color of the foliage in late fall. It does not produce its flowers in a large crop, but scatteringly over a period of two months and that at a time when there are very few other flowers to be had for anything in the outdoor garden. The specimen shown in the photograph is growing in Mr. Robert W. De Forest's gardens at Coldspring, L. I. Every once in a while the nurserymen will offer the *Gordonia*, but it is not generally in stock.

The plant's individual history is curious. It was discovered alongside the Altamaha River, Georgia, in 1765, by John Bartram, and was introduced into England by his son, William, nine years later and was lost. The second collection was made in 1778 from which all plants now in cultivation have been derived. It is curious that the plant has not been seen in a wild condition since 1790 and the majority of the plants now in cultivation

have been derived from the plant growing in Bartram's garden in Philadelphia. It would indeed seem that *Gordonia altamaha* is an appropriate shrub for American gardens.—*L. B.*

Building a Home.—In renewing our subscription I feel I must write and tell you what a help your magazine has been to us. We are city people with little money, who were determined to live in the country and hoped to make a living there. We rented one place, as an experiment, to make sure we really would like the country. Then we bought a twelve acre fruit farm and loved it but after five years' struggle with lack of help and lack of knowledge, we failed ignominiously and, very sorrowfully, went back to town. Just about the time *THE GARDEN MAGAZINE* was first published we made another attempt to live out of town. We bought twelve acres of pasture land. It had nothing on it but a few trees and they were so situated that we could not build near them. We subscribed for *THE GARDEN MAGAZINE* and followed its teaching closely.

Two years ago we sold that place for an unusual price for this vicinity and we have bought another place with half the money. The new place looked almost hopeless but is now beginning to show the effect of *THE GARDEN MAGAZINE*'s influence. In a short time we are sure we are going to have a beautiful little home—and a living. We grow *Gladiolus* and *Aster* blooms for a city florist and small fruits for the city market.

Once, three years ago we decided we would not take the *GARDEN* any longer but would depend upon our old numbers but we soon felt so out of date that we subscribed again for a three years' term.

It would take a much longer letter to fully express our appreciation of your magazine.—*F. W. Donaldson, Pennsylvania.*

As a Subscriber to THE GARDEN MAGAZINE I have gleaned a great many useful hints in gardening from it and would commend it to all amateurs in gardening. I have a small home in this little growing hamlet and have planned many little ways to make its surroundings pleasing to myself. May your useful magazine continue in the future as valuable as it has been in the past.—*Samuel O. Hedges, Bridgehampton, N. Y.*

A Compulsory Gardener.—Being one of the obsessionists who simply have to garden in the compulsory, Kipling, sense, I find the guidance of *THE GARDEN MAGAZINE* most helpful, and increasingly valuable from year to year. And now comes the pleasure of meeting Mrs. Wilder in the January issue. It makes one wish for more! Mrs. Wilder can make a Poppy note delightful.—*A. R., New York.*

THE MONTH'S REMINDER

SOWING AND PLANTING CONTINUED

EARLY this month finish up planting or transplanting held over from April.

Early vegetables, except those that are tender to frost, must be started at once, and frost will now only be likely in the Northern states. Succession sowings of radishes, lettuce, beets, carrots, and other short season vegetables can be made now. Allow a week to ten days after the first planting for most of these. Let "short rows often" be your rule.

May is also the flower planting month for both seeds and plants. Here, too, with the hardy and semi-hardy sorts, early planting is one of the big factors in getting results. Get the ground ready as soon as possible to give it all a chance to thoroughly warm up before planting. *Do not plant too deep!* Most flower seeds are very small, and need barely be covered. The use of humus in covering them generally insures satisfactory results. Press humus down lightly.

SUMMER BULBS IN RICH SOIL

SUCCESS with summer-flowering bulbs depends largely upon their getting a quick, strong start. Most of them are tender and should not be set out until the ground is warm. They prefer rich, mellow soil. Tuberous-rooted Begonias, Caladiums, Callas, and other particularly tender bulbs are greatly benefited by the use of individual forcers. In dividing Dahlia clumps, be sure to have an "eye" remain with each root. Dahlias do not send out sprouts like a potato, hence do not look for any when planting.

PLANT A "SUCCESSION CROP" OF GLADIOLUS

THESE sure and beautiful flowers, which have forged to the front rank of general popularity within the last few years have but one drawback, you cannot get flowers right up to frost from one early planting. For succession of bloom, succession of planting is essential. Planting at different depths, putting the larger ones down four or five inches, will give a second lot of blooms when those from the preceding month's planting are going by.

NEXT WINTER'S WINDOW GARDEN

IN THE bustle of getting the summer plants started, do not overlook the present opportunity of starting plants for blooming indoors next winter. Set aside a few square feet of ground for the starting of Heliotrope, Fuchsias, everblooming Carnations, Silk Oak (*Grevilla robusta*) and other good house plants of similar character. All these grow readily from seed, will provide a plentiful supply of pot plants little later on, and prove ideal for bloom in the winter window garden.

PLANT NOW FOR ROSES NEXT JUNE

IT IS not too late to have a Rose garden this year! If you act promptly, you can enjoy an abundance of blooms next month! Good strong, field-grown plants, potted during last fall and winter, are obtainable at reasonable prices. They will be in full growth when you get them, and ready to go right ahead and flower freely this season if transplanted with reasonable care. One of the great advantages of using this style of plants is that it practically receives no check in transplanting. In planting

grafted or budded Roses, be sure to get the "collar" or "union," where the bud was joined to the stock, two inches below the soil, and be very sure to firmly press the soil about the roots. You can use your foot to help pack the soil without any danger of getting it too compact. After planting, rake surface loose and fine, to leave a soil mulch about the plant.

DO THIS MONTH

- ¶ *Finish planting vegetables*—succession crops, and late or tender things.
- ¶ *Make a second planting of Gladiolus.*
- ¶ *Make ground ready for flower seeds* and plant as soon as conditions are favorable.
- ¶ *Plant summer bulbs* as soon as soil is warm enough.
- ¶ *Plant potted Roses* for bloom this year.
- ¶ *Promptly thin out* all vegetable and flower seedlings.
- ¶ *Get all early weeding* done on time.
- ¶ *Put in plant supports* for vegetables and flowers.
- ¶ *Make ready for warfare on garden pests and diseases.*
- ¶ *Attend promptly and thoroughly to spraying* of all fruit trees.
- ¶ *Give plenty of air and water* to all plants under glass.

PLANT THIS MONTH

Vegetables Under Glass; for forcing: beans, cucumbers, melons (seed); tomatoes, peppers, cucumbers, melons (plants).

For transplanting later: pole and lima beans, corn, cucumbers, muskmelons, watermelons, summer and winter squash (in paper pots).

Vegetables Out-of-doors; succession plantings: beets, carrots, lettuce, peas, radish, spinach, turnips, and also late potatoes.

After danger of frost: first plantings; beans, sweet corn, cucumbers, martynia, melons, okra, pumpkins, from seed; and egg plants, peppers, and melons, and other plants started in paper pots, from the frames.

In Seedbed; for transplanting later: cabbage, cauliflower, brussel sprouts, late celery, leeks, and tomatoes for late crops to mature just before frost.

For Plants; for transplanting in the fall or for forcing: French artichoke, asparagus, rhubarb, sea kale, witloof chicory.

Flowers; under glass if not already started: Begonias, Daisies, Fuchsias, Geraniums, Lantana, Lemon Verbenas, Petunias, Streptocarpus, and others for next winter's bloom.

Out-of-doors: bedding plants such as: Geraniums, Ageratum, Alternanthera, Abutilon, Alyssum, Asters, Lobelias, Petunias, Phlox Drummondii, Verbenas, Vincas, Japanese Ivy, German Ivy. *After danger from late frost:* Begonias, Coleus, Heliotrope, Salvias, Cobaea scandens, Moonflower, and Kudzu vine.

From seed: to remain where sown: annuals and biennials; the above, and also: Balsams, Calendula, Candytuft, Castor beans, Celosia, Coxcomb, variegated corn, Cosmos, Pinks, Gypsophila (repeated sowings), Annual Larkspur, Marigold, Mignonette, Morning glory, Nasturtiums, Poppies, Salpiglossis, Annual Sunflowers, Zinnias, etc.

Bulbs Outdoors; Bulbous Anemones, Gladiolus, Zephyranthes; and (after danger from frost): Tuberous Begonias, Caladiums, Callas, Cannas, Dahlias, Tuberoseas, Madeira vine and Cinnamon vine, etc.

Shrubs Out-of-Doors; Potted Roses; and early in the month, all ornamental shrubs as mentioned in last month's Reminder.

Fruits Out-of-Doors; if planted at once: fruits and small fruits mentioned in last month's Reminder.

than 5 inches tall. Onions will stand overcrowding better than almost any other vegetable, but careful records prove that even onions, judiciously thinned, produce considerably increased yields.

SPEEDING UP EARLY GROWTH

JUST after thinning or after the second cultivating will be a good time to give a top dressing of nitrate of soda to root crops, and other vegetables which are well enough established to be benefited. It always pays to pulverize and sift the nitrate before applying it. If it is coarse and lumpy, it is not only more difficult to apply, but a good deal will be wasted, and if some of the larger lumps fall near the plants it is apt to injure them.

THE CAMPAIGN AGAINST WEEDS

DON'T let the weeds get ahead of you. Even if you have to get some one to help out for a few days, it will be much cheaper in the long run—for weeds not only multiply, but they grow while you wait. Hoeing or weeding that could be done in thirty minutes to-day may require two hours by next week! Keep your wheelhoe going so that no weeds will ever have a chance to start between the rows. If you go over the ground once a week, you can wheelhoe as rapidly as you can walk. This will reduce the work of hand weeding and hoeing to a minimum.

Another often neglected matter is the timely providing of supports for such plants as tall peas, Sweet Peas, beans, tomatoes, annuals, and perennial flowers. Any that may need support should be taken care of before they have begun to climb or to lean over. If they once go down, it is next to impossible to handle them satisfactorily. The best time to put in supports is when planting.

A CRITICAL TIME FOR THE FRUIT CROP

EARLY spraying saves the first crop. A general spraying is due "before the buds open." Another "after the petals fall and before calyx closes." Get ready well in advance. A few warm days may open out the foliage, begin to swell the buds, so quickly that you will be taken off your guard. Where you have a number of different varieties, spraying will have to be something of a perpetual performance every two or three weeks, as by the time the later things would be ready, it will be too late to catch the early ones just right, and vice versa. This spraying means not a little extra work, but you cannot be sure of good fruit without it.

BE PREPARED FOR GARDEN PESTS

DON'T repeat last year's experience, and wait until the enemy is within your (garden) gates before you get ready to fight. You may find yourself needing some special things later, but by all means have ready in advance, a general purpose spray, such as combined arsenate of lead, bordeaux mixture, and nicotine sulphate, which is effective against both chewing and sucking insects and fungus diseases. Spraying in the vegetable garden is not a difficult thing if done systematically; it is a hundred times more work to dislodge the enemy when he is once established than to keep him out in the first place.

SPARE THE PLANTS AND SPOIL THE CROP

CROWDED rows often result in inferior vegetables. This is just as true of corn, peas, and beans as of root crops. Do your thinning early—the earlier the better. Every day's delay after the plants have made a good start, not only adds to the work but also to the injury or the set-back which the remaining plants sustain. The exception to this rule is onions, which are likely to be thinned out more or less by the attack of the onion root maggot. Even these, however, should be thinned before they get larger

Summer Flower-Roots for Present Planting G. W. KERR Pennsylvania

PROVIDE NOW FOR THE GREAT DISPLAYS OF LATE SUMMER AND FALL—HOW TO MANAGE FOR SUCCESSIONS OF BLOOM TILL THE TIME OF FROST—PRACTICAL COMBINATIONS

THE advent of early summer brings with it fresh opportunities for the garden enthusiast, notwithstanding the fact that too commonly the belief exists (or at all events if not the belief, the practice) that by early May the whole garden planting of the season is complete. It is true, and it is not true. Of course, the forehanded gardener who starts his seeds in February or March, and the man who takes advantage of the greenhouse opportunities for getting an extra early start in the youngest days of the year, will by this time have accomplished a great deal toward the ultimate beauty of the garden at the present season. But even he, with all his forehandedness and preparedness, cannot force events out of their place, and with the advent of May and on through that month into June, there is a new field of planting activity with summer flowering bulbs and flowering roots for late bloom. Of the standbys of the summer and fall garden, which must receive attention at this time, there are three of outstanding superiority—the Gladiolus, the Dahlia, and the new large flowered hardy Chrysanthemum. Added to these, of course, there are those of lesser importance, such as the Begonia, Caladium, the Tuberose, Amaryllis, besides hosts of others. And last, and by no means least, is the Canna.

To begin with the end, the Canna has a fitting place in the summer garden. A misused and a maligned plant perhaps, hard to use effectively in some instances, or (would it not be more correct to say), it is so effective when used that it has a danger of overbalancing its associates. The modern Canna, with individual flowers, taking on almost the proportions of a man's hand, are vastly superior to the old-time Indian Shot as to be hardly thought of in the same moment. The Canna is a plant that may be grown in any situation, provided it has water. The large flowered modern hybrids which have been given us by the work of Mr. Antoine Wintzer, are large-flowered, the trusses immense, and the plants can be had in a range of heights and in a rich gradation of color from white, through pink and yellow to crimson.

The present month is the summer garden-er's opportunity of the planting of these and associated roots, and planting done now and next month will insure flowers from July until frost.

THE GLADIOLUS

Each year sees an increased activity among lovers of the Gladiolus. More varieties are introduced, more variations of color are noticed, and the improvement of form and habit in the inflorescence is marked. This summer bulb is indeed a flower in a million for the gardens of America. It is one in which every gardener can indulge his fancy. The connoisseur, the seeker for rarities, has all the scope for extravagance that he may wish; while at the same time the sternly practical man, who wishes the most for the smallest outlay, can surely find material to

satisfy his desires. Some varieties there are that will flower nine weeks from date of planting, and by making successional plantings at intervals of two weeks, blooms may be had in the garden until frost brings down the curtain.

The Gladiolus will give the best account of itself when planted in clumps among other subjects, as in the herbaceous border or in the shrubbery. That is far better than setting them out in military like rows which only seems to accentuate what natural stiffness they possess. When planting in mixture with other subjects, it is well, however, to observe that they are not planted in close proximity to subjects which are gross feeders

course, being set 3 to 6 inches deep, according as to whether the soil is heavy or light. Then, sow annuals broadcast according to fancy. The seed of these annuals will be lightly raked into the soil, except in the case of Nasturtiums which must be planted one inch deep. Later the seedling annuals must be thinned out rigorously to perhaps nine inches apart. Additional batches of Gladiolus can then be planted in here at fortnightly intervals until mid-July, which will insure a continuous display of bloom from the bed. Grown in this way and allowed to finish their flowering on the plant, the flowering spike must be cut down as the last flowers fade in order to give room for succession and to maintain a neat appearance. When cutting, leave as many leaves as possible on the plant in order to perfect the new bulb which is the secret of next season's vigor.

The variety of Gladiolus is almost infinite, but I may be allowed to name a few as suggesting appropriate combinations with the better known annuals.

Halley—a Gladiolus with flowers of salmon-pink, blooms within two months from date of planting, looks well on a carpet of golden flowers of the California Poppy. It also makes a good combination with the yellow-flowered Gladiolus Niagara, which variety however requires two weeks longer to produce its flowers and must be allowed for by earlier planting if simultaneous bloom is desired. The variety America, with its massive spikes of delicate pink, combines well with Niagara; both flower ten weeks from planting. Another charming

picture that I obtained last year was the Baron Hulot and Golden Queen Gladiolus, planted in a bed with a carpet of white Petunia or white Drummond Phlox. Gladiolus Dieulafoy and Panama are an appropriate combination with Sweet Alyssum Little Gem. I append a list of well-known varieties with approximate flowering times for each from date of planting, from which data the individual will be able to work out schemes to fit

his particular desires.



The Peony-flowered Dahlia, the newest type of this popular flower, is well adapted to garden decoration. The flowers are held well above the foliage

or among the roots of shrubs which are liable to make an undue toll upon the fertility of the soil and to the detriment of the Gladiolus. Happy effects may be obtained by planting Gladiolus in conjunction with annuals of long season, such as Petunia, Eschscholtzia, Phlox, Sweet Alyssum, or dwarf Nasturtium. A bed of annuals and Gladiolus in mixture is satisfactory for a late planted garden. First of all, plant over the area with Gladiolus bulbs 15 inches apart. These bulbs, of

NAME	COLOR	TIME FROM
		PLANTING UNTIL FLOWERING
America	fine pink	10 weeks
Baron Hulot	dark violet blue	9 "
Cracker Jack	rich crimson	9 "
Golden Queen	light yellow with carmine blotch	9 "
Halley	salmon-pink	8 "
Jean Dieulafoy	primrose, chocolate blotch	9 "
Mrs. F. King	light scarlet	11 "
Mrs. Watt	wine-red	11 "
Niagara	canary yellow	10 "
Peace	fine white	10 "
Panama	deep pink	12 "
Rosy Spray	white and rose	11 1/2 "
Scribe	light rose flaked red	11 "
Taconic	pink marked crimson	10 "

Of the more recent developments of the Gladiolus, attention is focussed favorably on what is known as Primulinus Hybrids, which introduce us to a series of shadings of yellow flushed with pink and rose. The flowers are daintily proportioned and gracefully set along the spike in a somewhat looser arrangement than is characteristic of the older style of Gladiolus. As cut flowers for decorative



Decorative type

REPRESENTATIVE FLOWERS OF POPULAR TYPES OF THE DAHLIA

Cactus type

Cactus type

Collarette type

purposes, they outclass the other members of the family. And, although of comparatively recent introduction, have achieved a decided popularity. These Primulinus Hybrids, which are the results of blending the species of *Gladiolus primulinus* (yellow) with the older types, flower nine weeks after planting, and they have the further advantage that as each plant throws up a succession of spikes, the flowering season is continued over a period of several weeks. Planted in combination with the yellow California Poppy as a ground work, a harmonious study in yellow is assured. As regards the depth of planting *Gladiolus*, it should be remembered that, apart from all other considerations, deep planting has the practical advantage of obviating the necessity of staking.

THE DAHLIA

Plant Dahlias in May, or June, or July?

Why should we defer planting if it can be done in May, and will not May give better results than late June? The time to plant Dahlias is a much debated question among the experts even. There are probably many factors that control the answer. The matter of location is a big factor. For instance, it is beyond question that in some sections it makes not the slightest difference whether the roots are set out in early May or early July. Where early May planting can be done, the plants begin to flower about the middle of July, and under dis-budding continue blooming until frost, yet in a neighboring district the best results will accrue from planting as late as it is possible to keep the plants out of the ground. Many good Dahlia enthusiasts devote part of the Fourth of July to the ceremonial setting out of Dahlia roots. Why? Because in some

sections the wood from early growth becomes so hard that it cannot continue the succulent development that is essential for the production of good flowers. In other words, in certain localities late planting tides the plant over the early August drought so that it continues a normal, succulent growth later, whereas by early planting under such conditions, the early August drought produces a fatal hardening of the tissues. It matters not how thoroughly the ground is cultivated, nor how frequently it is done, Dahlia plants stop growing and the main stalk becomes too hard in sections where the late July and August drought is accompanied by excessive heat. Under such circumstances flower development is made impossible unless the

plants are then cut back hard; that is to say, clear to the bottom pair of leaves so that the subsequent development of the plant is from soft, young growth made from the base. *Fresh succulent growth is essential for the production of Dahlia flowers.* If you must plant your Dahlia roots in May (and it is very hard not to do so) if you have not had success with them of late years try the new practice this year of cutting them back during the early part of July.

Green plants or dormant roots? Again a matter of opinion. Many experienced growers say that there is no advantage one way or the other, while others claim that the green plant—that is a plant that is rooted from a cutting taken in heat in spring—will give exhibition quality flowers. The Dahlia has long been a favorite garden plant in England. Indeed it has been largely developed to its present perfection in that country, and there nothing but green plants are used when flowers are wanted.

My own experience during the past few seasons in Pennsylvania has led me to favor green plants, but this statement needs qualifying to the extent of saying that as far as the ultimate quality of the flower is concerned the results are the same. The cutting back system has one disadvantage, that is the inclination of some plants to throw out numerous suckers from the old root after the original top has

been cut back. This, of course, is the result of stimulating into growth the latent eyes which under normal conditions would have remained practically dormant, but which the check of cutting back stimulates into action. These

must be watched for and removed, cutting them well below the soil level. This is important in order to get air and light freely circulating around the growing stems.

Perfect flowers—flowers which will be thrown well above the foliage, which can be seen—means disbudding regularly, a practice which is necessary with all the Cactus, large double Show and Decorative types of the Dahlia. Disbudding is not necessary with the



This shows how one individual plant of the modern early flowering *Chrysanthemum* will develop under good cultivation. A veritable bouquet



Type of single Dahlia. Very useful for interior decoration and cut flowers

Single, Collarette and Pompons, nor indeed with many of the Peony flowered types. Disbudding is quite simple. It is merely nipping out the smaller buds that surround the main bud on the central stalk, thus allowing only the strongest, largest bud to develop into a flower. Pinching back the lateral shoots will also help. It is unfortunate that many of the finest Cactus flowered varieties "hang" their flowers so that while on the plant only the back is exposed to view. These, of course, should be grown only when the object is the development of the flower for itself. For garden, decorative, or even for interior decoration of cut flowers, these weak-necked brothers had better be avoided. When wanted primarily for decorative purposes, the gardener will plant freely of the Peony flowered, the single, the collarette, and the decorative types, choosing varieties according to his personal preferences. All these types flower more freely than varieties of the Cactus type which, with few exceptions, as for instance Countess of Lonsdale, do not flower very freely. This variety though not an up-to-date introduction, has fine habit and is not surpassed in freedom of blooming by any variety of any type out.

As early, free and continuous flowering varieties, which can be thoroughly depended upon in any season, try the following:

PEONY-FLOWERED DAHLIAS

Hortulanus Budde, coppery red.
Baron G. de Grancy, pure white.
Glory of Baarn, soft pink.
King Leopold, lemon-yellow.
Miss G. Keeling, light rose.
Mrs. Hugh Dickson, rich salmon.
Mrs. W. E. Whinery, rich rose.

Single Century in variety. These are particularly showy and have flowers of great size.

DECORATIVE DAHLIAS

Delice, lovely rose-pink, one of the best.
Jack Rose, rich deep crimson.
Lyndhurst, scarlet, an old favorite.
Minnie Burgle, the finest red decorative.
Perle du Parc, pure white.
Bertha von Suttner, mauve-pink.

CACTUS-FLOWERED DAHLIAS

Countess of Lonsdale, salmon-pink.
Marjorie Castleton, rosy-pink.
Miss Willmott, orange and yellow.
Floradora, rich crimson.
Morning Glow, yellow and amber.
T. G. Baker, yellow.

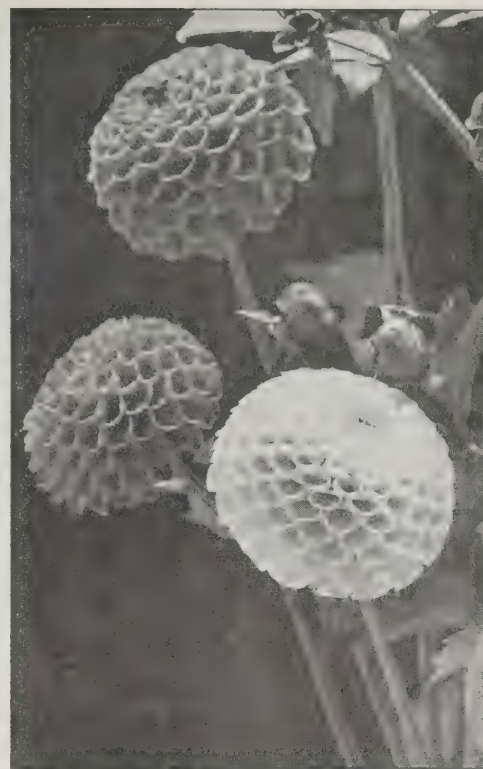
The foregoing are what might be termed "garden varieties," where plenty of flowers are the first consideration. From May or June planting they will bloom late August and early September.

HARDY GARDEN JAPANESE CHRYSANTHEMUMS

Chrysanthemums as charming as the indoor varieties, perfectly hardy, and flower-



Among the modern Gladiolus types none are more distinct nor more useful as all around flowers than the "primulinus hybrids" in shades of yellow flushed rose and pink



The Pompon is a diminutive replica of the old fashioned Show type; flowers are here shown about natural size

ing for at least six weeks in this section, are now available. They are indeed the glory of the autumn garden.

Set out the young plants in rich, good ground during May. Give them ample room to develop, say two feet apart, and pinch out the leading growths to encourage a bushy habit. They require little attention beyond cultivating and watering during periods of drought. The varieties vary a little in earliness, some beginning to bloom in late August; but all are seen at their best from mid-September until frost. Last fall they flowered until the middle of November. A little frost may mark the expanded flowers but does not spoil the buds which, if the weather becomes mild again, develop perfectly.

Reliable varieties in this remarkable family are:

Cranfordia, bronzy yellow.
Cranford White, pure white, sometimes tinged pink.
Carrie, deep yellow.
Chas. Jolly, rosy pink.
Dorothy, large pure white.
Evelyn, crimson-bronze.
Harvest Home, bronze.
Le Pactole, bronzy yellow.
Miss B. Hamilton, rich deep yellow.
Nellie Blake, crimson.
Normandie, cream white.
Petite Louis, light mauve.

By disbudding flowers may be had four inches, and even more, in diameter.

New Deutzias Better Than the Old

JOHN DUNBAR
Rochester, New York

[EDITOR'S NOTE:—The American Spring garden will always welcome new flowering shrubs of real merit. A novelty though always of interest is not necessarily better than the older things, and so may never become popular. With new shrubs time is required to prove their relative merits and exact work of the kind that Mr. Dunbar here records is valuable. THE GARDEN MAGAZINE feels gratified in being able to place before the garden lovers of America these important notes and recommendations by a man abundantly qualified to speak with authority and from actual experience.]

AMONG the most popular early flowering shrubs the Deutzias have long been leaders, ranking as garden shrubs with such common favorites as the Lilacs and Spiraeas. It is, however, true that they cannot be classed among the hardiest of shrubs, but where they get winter protection, and even in the colder regions where the winter snow mantle is sufficient, they never fail to give a wealth of bloom in early summer.

Where the temperature is likely to drop considerably below zero, and to remain there for some time, Deutzias will hardly succeed, unless very well protected. It is important to plant them on a well drained light loam, on land gently sloping if at all possible, where the frost will not settle. It would be a mistake, where the winters are cold, to plant them in the centre of a well protected hollow, where the frosty air is sure to lodge. It is wiser to plant on the slopes leading to the hollow, giving opportunity for the cold air to settle lower down. We have a large collection of species and hybrids in the public parks of Rochester, and they flower splendidly. Occasionally the temperature drops a little below zero, but it never continues for any length of time.

Deutzias always flower best on the young wood of the previous year. The thinning out of old wood, and old flowering sprays when the plants are dormant should always be attended to.

Recent improvements owing to the introduction of new species and hybrids from them, have made available for our gardens Deutzias that in quality of flower and in size of the individual bloom outclass anything that was known among the old timers. It is now a good many years ago since the Lemoines of Nancy, France, began the work of improvement of Deutzias by crossing the different species and carrying the work still further by re-crossing the hybrids again with species. In the resulting progeny of all this work there are many most lovely garden shrubs in which floral profusion, size of blossom, and rich coloring, have been greatly developed. More recently we have been given, through the travels of E. H. Wilson in China, several interesting species of intrinsic beauty, natives of Western China. These, as is the case with other of Wilson's plants, are introduced



D. glomeruliflora "is one of the many good things introduced by E. H. Wilson." Greyish-white leaves; flowers white nearly an inch across. June 1



D. discolor, flowers white fully $\frac{3}{4}$ inch across. June 25



D. myriantha *Fleur de Pommier*, or *Apple Blossom*. Flowers rosy pink about May 30

through the Arnold Arboretum. I purpose to call attention to what I consider the best of the newer species and hybrids with notations as to their flowering period.

AMONG THE SPECIES ARE:

Deutzia discolor producing dense compound corymbose clusters of white flowers, along the branches, from $\frac{3}{4}$ - $\frac{7}{8}$ inch across. It is a strong grower, and very handsome in bloom. In normal seasons it flowers about June 25th. From 3 to 4 feet high. Though this has been in cultivation for some time it is only recently we were able to secure plants through the Arnold Arboretum.

Deutzia glomeruliflora has flowered with us for two seasons, and is one of the many good things introduced by E. H. Wilson from Western China. It has distinctive grayish white leaves which are very soft pubescent. The beautiful white flower corymbs are produced abundantly along the branches, which are

slightly curved toward the terminals. The flowers are $\frac{7}{8}$ of one inch across, and are fully opened about June 1st. It forms a neat shrub 2 feet high at present, what height it will ultimately attain I do not know.

Deutzia longifolia is another introduced by Mr. Wilson. It has a distinctly upright branching habit, and somewhat long, lanceolate leaves. The corymbose flower clusters are produced on the ends of branchlets, 3 to 5 inches long, and are exceedingly variable in color, shading from pinkish red to purplish red. It blossoms about June 21st. Mr. Wilson when visiting here on January 7th, was much surprised and pleased to see by the old flowering branches, how well this flowers with us.

Deutzia Sieboldiana is not a new species, but is rare in cultivation. It is the lowest growing of all the Deutzias, and has a very neat compact habit. It has smallish white flower panicles, which are not conspicuous; but it is a very graceful shrub. It flowers about June 19th.

Deutzia Vilmorinae, certainly strikes a most distinct note amongst the Deutzias, and it is a gem amongst all of the Deutzia species, and hybrids. It will ultimately attain a height of from 4 to 5 feet. The handsome white, loose, corymbose flower clusters are produced at the ends of branchlets, $4\frac{1}{2}$ to $6\frac{1}{2}$ inches long. The blossoms are seven-eighths of an inch across. Usually flowers about June 1-5.

Deutzia Wilsoni flowered with us for the first time in 1916. The white flower corymbs are very compact, and are produced on the ends of branchlets $2\frac{1}{2}$ to 3 inches long. The leaves are pubescent above and grayish tomentose beneath. It blossoms about June 19th. Our plants are small but it is said to attain a height of 6 feet.

THE FOLLOWING ARE HYBRIDS

Deutzia carnea is a most lovely flowering shrub, having numerous panicles, 4 to $4\frac{1}{2}$ inches long, of pink or pinkish red flowers, and blossoms in a normal season, about June 28th. This is a hybrid between *Deutzia gracilis* and *D. purpurascens* and is usually catalogued under the name of *Deutzia discolor carnea*.

Deutzia elegantissima is just what the name implies—a most elegant flowering shrub. It sends up slender branches, which produce branchlets 5 inches long, terminated by



D. Vilmorinae strikes a distinct note, and is a gem. 4-5 ft. high. Flowers white. June 10



D. Kalmiaeflora which has flowers somewhat like Mountain Laurel is the tenderest of all the hybrids. June 1

road corymbs of handsome white flowers which are tinted outside and inside with pinkish red. It usually blossoms about June 11th. This is a hybrid between *Deutzia purpurascens* and *D. Sieboldiana*, and is catalogued under the name of *Deutzia discolor elegantissima*.

Deutzia Kalmiaeflora. As the name implies the flowers have a faint suggestion of *Kalmia* blossoms. They are produced in smallish corymbose clusters. The blossoms are rose tinted inside and strongly marked with carmine outside. This is a very beautiful form and is a hybrid between *Deutzia parviflora* and *D. purpurascens*. We find this to be one of the most tender of the hybrids. It is apt to be injured in a very severe winter. It is usually in bloom about June 1st.

Deutzia Lemoinei Boule de Neige is always very noticeable in bloom. The numerous dense upright panicles of creamy white flowers stand out prominently. This is one of the progeny of *Deutzia gracilis* crossed with *D. parviflora*. It is very hardy, and blossoms usually about May 30th.



D. rosea campanulata. "One of the most charming of all." Bell shaped white flowers and reddish calyx. May 30

Deutzia magnifica and its forms represent hybrids between *Deutzia scabra* and *D. Vilmorinae*. *Deutzia magnifica formosa*, has double white flower panicles with petals somewhat reflexed on branchlets 5 to 8 inches long. This is very showy and floriferous, and would appear to be an excellent form for cut flower purposes. It flowers about June 21st.

Deutzia magnifica insignis, bears strong marks of *Deutzia Vilmorinae*, one of the parents. The branches are slender and dark colored, with smallish leaves. The double white, broad flower panicles, somewhat inclined to be corymbose, on slender branchlets $5\frac{1}{2}$ inches long are very conspicuous. It blossoms about June 19th.

Deutzia magnifica latiflora is a form with single large flowers on upright panicles. The pure white single blossoms are very attractive. The flowers on our plants however, do not attain the size the originators claim for them, as they state they are $1\frac{1}{2}$ inches across. Perhaps when the plants become better established, the inflorescence may improve. It blossoms about June 21st.

Deutzia myriantha is a hybrid between *Deutzia parviflora* and *Deutzia setchuenensis*, as given by the Lemoines. Alfred Rehder places it as a hybrid between *Deutzia Lemoinei* and *D. purpurascens*. This is hardy with us, which surprises me, as one of the alleged parents, *Deutzia setchuenensis* will not stand our winters. *Deutzia myriantha* is a charming garden plant. The large loose pure white flower cymes are produced on slender branchlets, and stand out prominently. It blossoms about June 21st. Forms a bush $2\frac{1}{2}$ to 3 ft. high.

Deutzia myriantha Fleur de Pommier is a neat, upright branching shrub, producing numerous flowering branchlets four to six inches long, terminated by the showy rosy pink corymbose clusters. [Hence its varietal name signifying "apple blossom"]. A beautiful garden plant, and blossoms about May 30th.

THE "ROSEA" FAMILY GROUP

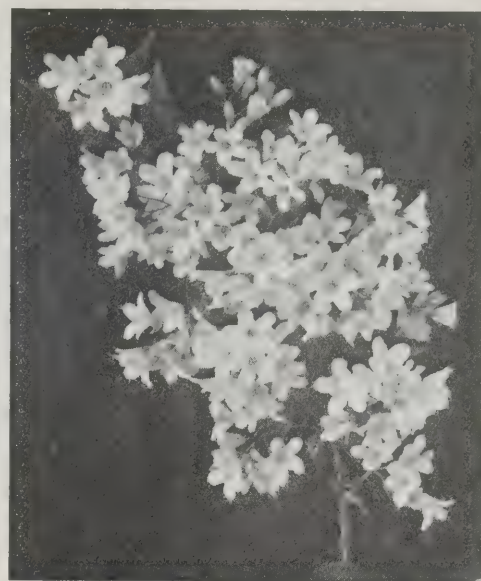
The following *Deutzias* are all the resulting progeny of crossing *Deutzia gracilis* with *Deutzia purpurascens*.

Deutzia rosea is a small growing shrub, with arching branches. When in bloom the branches are thickly covered with pretty panicles of pink flowers, turning in a few days to deep rosy pink. This is a dainty flowering shrub and usually is in bloom about May 28th. It flowers about the same time as the common *Deutzia gracilis*.

Deutzia rosea campanulata is one of the most charming of all *Deutzias*. It grows freely, and the long, graceful, arching branches covered with the panicles of campanulate, or bell-shaped, large white flowers, surrounded by reddish calyx lobes, combine to make it an extremely beautiful form. It usually is in blossom about May 30th. This should be in the collection of any person who wanted, say six of the best *Deutzias*.

Deutzia rosea carminea stands out prominently as a highly colored form in bloom. The habit is upright, and the panicles of deep rosy pink flowers, distinctly carmine red outside, give it a singular appearance. The young branches and branchlets are darkish red in color. It is usually in bloom about June 1st.

Deutzia rosea eximia is a most superb form. The habit is inclined to be upright. The numerous flowering branchlets, 5 to $5\frac{1}{2}$ inches long are terminated by handsome flower panicles. The blossoms are $\frac{7}{8}$ of one inch across, and are richly tinted with deep rosy



D. rosea has pink flowers becoming rosy as they age. A small growing shrub that flowers May 28

pink outside. It generally comes in flower about May 28th.

Deutzia rosea grandiflora forms a bush of considerable size, and is inclined to grow more vigorously than most of the hybrids. This was sent out by the Lemoines a number of years since, and we have grown it for a good many years. The white flowers are almost one inch across, and beautifully rose tinted on the outside, and borne on numerous ample conspicuous panicles. It flowers about May 30th.

Deutzia rosea multiflora is distinct for its abundant white flower panicles, which are thickly clustered together on compact small bushes. The blossoms are $\frac{7}{8}$ of one inch across. It is in full bloom in normal seasons about May 28th.

Deutzia rosea venusta is a form with remarkably pure white flowers, and the individual blossoms about 15-16 of one inch across. The flowers are borne on large conspicuous panicles on fastigiate branches, which renders it very distinct amongst other *Deutzias*. It blossoms about May 28th.



D. rosea grandiflora. White flowers rose tinted on the outside. Almost an inch across. A vigorous grower. May 30

The Rockery Idea in Edgings

Alice Rathbone
New Jersey

A SUCCESSION OF FLOWERS AND ACTIVE INTEREST ALL THE YEAR ROUND—HOW ROCK AND ALPINE PLANTS MAY BE USED IN ANY GARDEN—BIG RETURNS FOR LITTLE LABOR

ON A gentle slope that meets the curve of the drive at its foot, lies the garden-of-the-many-edgings, its space divided into beds and borders by three long cross-walks and four shorter, intersecting walks.

The plan gave opportunity for the use of stones to wall the slightly terraced beds, and the rockery-like edges thus gained were furnished, for the most part, by sowing seeds one spring for the next year's bloom, and the planting of bulbs in the fall. Once established, they became the garden's most attractive feature, take the season through.

Low-growing things of the alpine class like so well to nestle themselves among stones, (and they do it so prettily with mats, and tufts, and cushions of various grays and greens) that the edges they help to make are not only interesting in themselves, but they are as becoming to the beds they frame as were old-fashioned strings—to the pretty face above them when—

"Tying her bonnet under her chin,
She tied the young man's heart within."

And something of the fascinating effect of bonnet strings is repeated when the charm of the edgings goes straight to the gardener's heart.

The secret of the charm is found, of course, in the endearing character of those close-to-the-earth plants that belong among rocks. They are garden pets that, somehow or other, have an irresistibly appealing way with them.

The value of these edges as a garden adjunct is particularly evident in the spring, when gay or delicately tinted Tulips rise from white Arabis waves; when Forget-me-nots and the Tulip White Swan are set in the gold of hardy Alyssum; when Aubretia's lilac-pinks, the yellows of the Primrose and the purple of Dwarf Iris join the colors, while English Violets prompt a child-neighbor to say, "Your garden makes the whole world sweet." Then is come the most poetic moment of the garden year.

Beauty, indeed, at just this time is so eloquent, that the garden easily evolves its poetry without the aid of words, thus outdoing in simplicity some of the modern vers libre methods.



A few appropriate plants nestling alongside rocks will give flower in earliest spring

Although the early spring effect is hardly equalled by any subsequent display, another period of loveliness follows in late May and June. For then the broader, bolder edging skirting the drive, which allows more freedom



The edging is permanent and the effects change as the seasons roll by giving a constant interest

of planting than the others, is bedecked with Saponaria, Iberis, June Pinks, Cerastium, the rich green of Tunica sprinkled over with its tiny pink flowers, Sedum acre, Moneywort, and Lilies-of-the-valley in partial shade, and late Darwin Tulips—backed by a band of Iris.

Delight in the bright, fresh coloring, untouched as yet by midsummer gaudery, is enhanced by its contrast with the soft grays of Stachys lanata, Cerastium, and Sedum.

To secure continuance of bloom in this broad edging, a few Tuberose are provided; seedlings of dwarf Marigolds, including the desirable Tagetes signata pumila, are set among Tulips; dwarf Zinnias, too, if one can be fairly sure of one's colors; and annual Wallflowers that help to bring our newer gardens into pleasant touch with those of the old world, which Wallflowers suggest. These are the last flowers to leave our Garden. Even as late as this writing. (December fourteenth) a bowlful of Wallflowers, cut when

in bud, is still fresh and fragrant.

With the aid of late blooming annuals, of autumnal Crocus, and those indispensable Sedums Sieboldi and spectabile, September makes a good showing until heavy frosts.

Here, too, the various grays and greens of leafage take their part well in seeing the season through, and in this connection the fragrant green of Lemon Thyme is noticeable. With slight winter protection, this interesting little herb makes itself quite at home in a snug cranny among the rocks from which it tumbles cascade-like, to root on the drive.

Setting the edges to rights for another year is simply good garden fun. The pleasure comes in early fall when little touches are given here and there either to work out some happy thought of improvement, or to guard against frayed edges by repairs.

A worn out hardy Alyssum or two may need replacing with seedlings from spring sowing; a bit of Tunica's green fringes would trim that small boulder prettily, so a vigorous self-sown plant is set in place; those stylish rosettes that houseleeks have the knack of making are dotted around in crevices or pockets, wherever a finishing touch is needed, and once sewn fast to the garden's costume with a trowel—there they are, with the look of having always belonged precisely where they are placed; lastly the planting of Tulip bulbs occurs, and then winter may come when it will.

For even winter cannot rob these edgings along walks and drive of all interest. Small evergreens used at the corners of beds, together with ever-gray-greens and ever-blue-greens of alpine and June Pinks carry the edges through the trying cold, to the charm of the spring garden again.



May, and the Tulips are in their full glory; and the early edgings break the rocky fringe



June with the Irises taking the lead. Note the changes in the foreground

Home Vegetable Gardens A Patriotic Duty

ANNA M. BURKE Massachusetts

MAKING THE MOST OF LIMITED SPACE—VEGETABLES IN CONTINUOUS SUPPLY—USING THE GROUND TWICE OVER—ECONOMICAL LABOR METHODS

OUR kitchen garden is small—a scant fifty feet each way—yet from it are gathered practically all the vegetables needed for a family of three from the middle of May to the first of November, with a good surplus sterilized in glass jars for winter use.

Yet, however great the yield, I always consider that the best crop gathered from the garden is experience. The year that I do not discover some new variety, an improved method of growing, or some better arrangement or combination of vegetables, leaves me with a barren feeling, conscious of having taken a step backward rather than forward in garden culture. But let us take things specifically in detail.

Corn. Although the catalogues set the middle of May as the time to plant corn, we plant half a row about May 1st, or even earlier if the season is warm. The dwarf yellow varieties (Golden Bantam and its successors), are quite hardy, and if the weather is good, early planting gives a fine start, whereas the loss of a few seeds is immaterial if conditions prove unfavorable. This year I shall try the experiment of setting a row of 6-inch boards along each side of the trench and laying sheets of glass on top, to form a sort of frame. This simple device proved very successful with lettuce last fall, keeping it growing up to Thanksgiving in the open garden. I shall try the same device with string beans, and later with cucumbers [and, we hope tell THE GARDEN MAGAZINE of the results—Ed.].

It took at least two years to impress upon me that in this latitude the late varieties of corn (such as Stowell's Evergreen), do not mature well if planted much after June 1st. Hereafter, for filling late gaps in the garden I shall use some early variety.

String Beans. After experiencing the surfeit of string beans that follows a generous planting of this vegetable, I have adopted the plan of sowing a very small quantity at intervals of two weeks. Much seed is wasted by planting thickly, because beans need to be six inches apart in the row to do well, and eight or ten inches apart is better still. By selecting only the plumpest and firmest seed, I can set them the required distance apart, thus wasting no seed and sparing myself the trouble of thinning thereafter. Our garden is comparatively free from cut-worms, thanks to frequent cultivation and the encouragement of bird neighbors, but where this pest abounds the seed must be sown more thickly to allow for his depredations.

Lima Beans. Having tried without marked success the pole varieties and the large-seeded bush limas, we have found that the small Sieva bean (Henderson's Bush Lima) can be depended upon to produce a good crop whether the summer be cold or hot, wet or dry. Every seed seems to germinate (therefore may be sown thinly, requiring less seed), and the yield of small, but well filled, pods continues until frost.

Tomatoes. We have always trained our tomatoes on 6-foot stakes, because they take

up less room, but after several years' experimenting I have come to the conclusion that the pinching off of all but one stem is a needless sacrifice, unless one desires to grow a few specimen fruits. Two and even three or four stalks may be allowed to develop, with no appreciable loss in size or quality of the tomatoes, and the yield is much greater. About the first of September pinch off the tip of each branch, allowing the strength of the plant to go into developing the fruit already set, rather than producing more blossoms which could not be expected to mature before frost. Contrary to the advice of some authorities, we find the tomato does best in a fairly rich soil.

Chinese Cabbage. Although we usually fight shy of novelties, we tried the Chinese cabbage and found it a most attractive vegetable, producing firm, elongated heads of crisp,

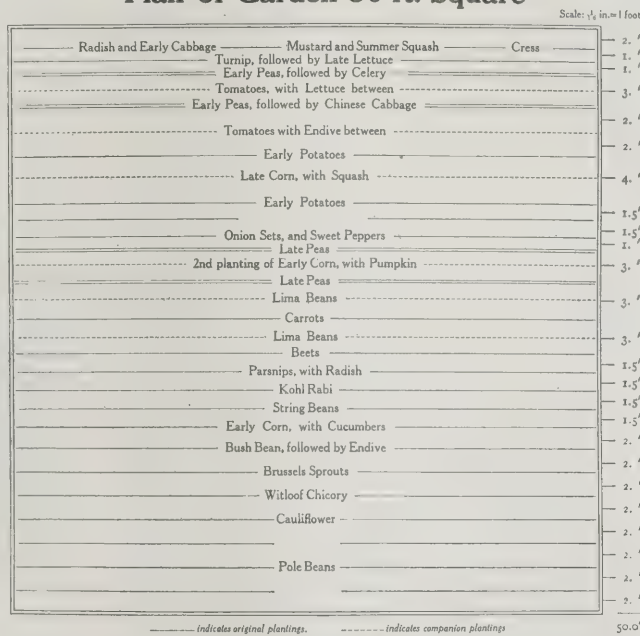
of nitrate of soda. The larger the roots, the better they will force. About the first of November the parsnip-like roots were dug and piled in a sheltered corner next the house, covering them with coarse litter. A dozen roots were forced at a time, setting them upright in a deep box (an orange box with two compartments is ideal) and filling in around them with good garden loam, mixed with fine bone meal. The box should be deep enough so that the soil may cover the tops to a depth of three or four inches, and this top soil should be sifted. The box was placed beside the heater in the cellar, given a good watering with lukewarm water, and covered with papers to keep out the light. In a few days white shoots began to show and in two weeks we had thick cones of tightly folded leaves, crisp and perfectly blanched. We cut them an inch or two below the surface of the soil, and the plants continued to send up more shoots. By bringing in roots at intervals of two weeks, salad may be enjoyed all winter.

Peas. We used to be quite satisfied if this delectable vegetable graced our Fourth of July dinner table, but after observing an old Italian, who tilled a vacant lot nearby, pick well grown peas by the middle of June, I set out to learn his secret. It was really very simple—merely *early planting* in the sunniest spot available. Now we do not wait until the ground has dried out, but just as soon as it can be worked (about April 1st to 9th, latitude of Boston), the first sowing of peas is made in a 2-inch trench. If possible, the trench is opened the day before, which gives the sun a chance to warm and dry the soil. Only an inch of covering is put on the seed, the rest being filled in as the little plants grow. These early planted peas have a larger and better root system than those planted later, with consequent increase in quality and quantity of pods.

Another "experience": By planting medium and late varieties at one time in the latter part of April we get a longer yielding season than if early varieties are planted at intervals in succession. The early varieties all strive to make up for lost time the moment they get into the ground, and rush to maturity in quantities that glut the market, leaving a dearth to follow. The late varieties are planted in a 6-inch trench, which gives their roots better foraging ground through the heat of midsummer. Indeed, this season I am planting the late peas in a 10- or 12-inch trench (like Sweet Peas), filling in the trench gradually, of course. This should help them to weather quite a severe dry spell.

Potatoes. Most books on gardening state that the potato has no place in a small garden—although after the exorbitant prices commanded by this plebeian vegetable during the past winter, one expects to see even the front lawns turned into potato patches! But even under normal conditions I think it pays to plant a row or two of early potatoes, and to *plant them early*. My neighbors used to scoff until I "showed" them by having potatoes for the table by July Fourth, when theirs were scarcely in blossom. If the ground is at all fit,

Plan of Garden 50-ft. Square



white leaves, which may be used as a salad or cooked as a vegetable. It is delicious either way. Care must be taken, however, not to plant the seed too early, or the heat of midsummer will cause it to send up blossom stalks instead of forming heads. If planted about the first of July and kept growing steadily, firm white heads, weighing two or three pounds, will be produced in September. Query: Might it not also be started in a frame in March and matured before hot weather, as in the case of cauliflower?

Witloof Chicory. If you relish the bitter tang of this salad (sometimes called French Endive), for which restaurants and markets ask such good prices, you may be interested to know that it can be forced all winter in your own cellar. An article by Frances K. Porter in the April, 1916, GARDEN MAGAZINE prompted me to try this vegetable, and my almost perfect success makes me anxious to add a word in its favor. Seed was sown in drills eighteen inches apart about the middle of May, thinned to stand six inches apart in the row, and kept cultivated all summer, with an occasional dose

early potatoes may be planted the first week in April. If the season is backward, time may be saved by sprouting the seed in a warm cellar. By planting the sets in a furrow eight or ten inches deep, gradually filling in as they grow, they may be given level cultivation, which prevents the evaporation of moisture that is attendant on the old hilling system.

Companion Cropping. In the arrangement of the garden, perhaps, more than in anything else do we learn by experience. When one has but a limited space available for a garden plot, it is necessary to utilize every inch of it throughout the summer. By allowing a little extra space between the rows two crops may often be grown as companions, with great saving of space. Some combinations which I have found especially good are:

(1) **EARLY PEAS, LETTUCE AND TOMATOES:** The early peas are planted in two double rows with a 3-foot strip between the double rows. By planting in double rows one row of brush supports two of peas. After the peas are in, a shallow furrow is plowed through the middle of the 3-foot strip, plenty of fertilizer is worked in, and young lettuce plants from a frame are set in the furrow, placing them six inches apart and leaving a 12-inch space after every second lettuce plant. In these empty spaces tomato plants are set about the middle of May, the supporting stakes being first set. The peas are out of the way by July 1st, and are followed

by celery plants in one row and Chinese cabbage in the other. Thus we are able to grow peas, lettuce, tomatoes, celery and Chinese cabbage in a strip five feet wide and fifty feet long.

(2) **LATE PEAS AND CORN:** The late peas are also planted in double rows, with a 3-foot strip between, and in this strip is planted about June 1st Golden Bantam corn for succession, putting a few winter squash seeds in the row at intervals of four feet. The squash and corn have the ground after the peas are done.

(3) **ONION SETS AND GREEN PEPPERS:** These form an excellent combination. The onion sets are planted about the first of April in two shallow furrows eighteen inches apart. They are placed three inches apart in the row, skipping a set every eighteen inches. The latter part of May, sweet pepper plants are set in the empty spaces. Both onions and peppers may be cultivated freely, and by the time the onions are ready to pull, the peppers are beginning to branch and will occupy the ground until frost.

(4) **POTATOES AND LATE CORN:** By leaving a 4-foot space between the potato rows instead of the regulation three feet, a row of late corn may be planted between them May 15th, setting some pumpkin seeds in the row with the corn. Squash or other vines may be used as well. The point is that the corn and

vine crops will flourish in the same row and will use the ground until frost.

(5) **CORN AND CUCUMBERS.** Our cucumbers are planted in rows instead of hills, setting four or five seeds of early corn every two feet in the row. We prefer the drill system for cucumbers because the ground may be cultivated more easily with the wheel hoe, and by pegging them with forked sticks the vines may be trained along the row, taking up less room and enabling the fruit to be gathered without trampling the vines.

(6) **RADISHES:** No special part of the garden is set aside for radishes; instead, the quick-germinating seeds are used as a marker for those which germinate more slowly, or the seed is sown in rows which a few weeks later will be used for other vegetables. We have found Icicle excellent.

There are one or two points which must be borne in mind in planning for companion and succession crops. The ground must be well fertilized. Sufficient room must be left for frequent cultivation, except with vine crops which ultimately cover the ground and render cultivation unnecessary. Vegetables which must be sprayed with poisonous solutions should not be planted near those whose edible portions are exposed above ground. In even the smallest garden rotation of crops should be practiced. The accompanying plan has been proved by use.

How the Modern Lilac Came to Be THEO. A. HAVEMEYER

Long Island

RECOUNTING THE STORY OF MR. LEMOINE'S WORK AS TOLD BY HIMSELF

FROM the time of my first acquaintance with the modern Lilac, I have been a devoted admirer. Compared with the original plant—the Common Lilac of the old-time gardens—these of to-day with their great variety of color, larger flowers that will in some cases cover a five dollar gold piece, greatly increased size of truss, are hardly to be mentioned in the same breath, except for the fact that they are all Lilacs. What vision it was that led the wonderful French nurseryman, Victor Lemoine, to grasp the latent possibilities of this magnificent flowering shrub! Ably assisted by his wife, as the old gentleman has himself told me, he worked for years in developing the Lilac into what we have to-day.

But to go to the beginning: the development of the Modern Lilac dates from 1843 when M. Libert-Daminont, a nurseryman of Liege, Belgium, obtained a Lilac with small double lilac-blue flowers, described by Charles Morren, a botanist of Liege, under the name of *Syringa vulgaris fl. plena* "Liberti," this plant, interesting as a curiosity, but without any ornamental value was also mentioned in the lists of other nurserymen of the day, under the name of *Syringa vulgaris azurea plena*. It would be difficult indeed to find it now, anywhere.

This was the variety that Victor Lemoine, perhaps the greatest hybridizer, and plant breeder the world has ever known, had the idea of crossing with the Single Lilacs in an effort to produce a race of ornamental Double Lilacs. Now the flowers of these plants are small. This work of crossing demands good eyesight which Mr. Lemoine did not then have, and so, he told me, he sought the aid of Madame and

placed into her care the very delicate work of cross fertilization. This work, first started during the Franco-Prussian War, when Nancy was occupied by the Germans, solely as a diversion from the trials of the time, was carried on by Mme. Lemoine for many years under the direction of her husband.

Syringa azurea plena was most difficult to work on, the minute flowers being formed of

many petals, nearly microscopic, without stamens, and with a pistil covered with the lobes of the interior petals, malformed and sterile. Yet this was the plant selected for the seed bearing. It was necessary to work from a step ladder on account of the size of the bush, uncovering a number of flowers to expose the pistil and then apply the chosen pollen to the flower when one was found in which the pistil was not too much malformed. The pollen was supplied from the handsomest varieties of Single Lilacs available; and *Syringa oblata*, a Chinese early flowering species, the flowers of which were often destroyed by the late frosts. Thus it will be seen that the plants finally attained were the achievement of patience and tedious work. Even so, the results were ever in doubt, and from more than one hundred flowers crossed, the first year produced only seven seeds. The following year thirty fertile seeds were gathered, and the work continued.

The first fruits of the work of Mr. and Madame Lemoine were seen in 1876 when three bushes flowered. The first received the name of *Syringa hybrida hyacinthiflora plena*, and was a true hybrid between *Syringa oblata* and *Syringa azurea plena*. The thyrses of this variety were quite well developed, the flowers small, a little separated, double, of a lilac-blue color and flowering fairly early. The foliage recalled that of *Syringa oblata* and took a purple autumn tint that rendered it attractive. This variety was put in commerce in 1878, and is not cultivated now; but a specimen can be seen in the Lilac collection of the Arnold Arboretum, Boston, Mass., where it



One of the progenitors of the modern Lilacs. *Syringa oblata*, which was used by Lemoine

flowers before any of the others. Its fragrance is very marked.

Syringa Lemoinei flowered for the first time in 1877, and was put in commerce in 1879; this was not a hybrid but simply a cross between *Syringa azurea plena* and another variety of Single Lilac; the flowers of this variety were double, of a good size and pure blue-lilac in color. From the same cross also resulted the varieties *Revoncule* and *Rubella plena* (1881) and *Mathieu de Dombasle* (1882).

The first Double Lilacs were crossed without much difficulty with Single Lilacs and gave after a few years a new line of seedlings. The following were placed in commerce—Alphonse Lavalley and Michel Buchner (1885); Maxime Cornu, President Grevy, Pyramidal and Lamark (1886); Tournefort, Comte Horace de Choiseul, Mme. Jules Finger and Sénateur Vollard (1887); Condorcet, Virginite, Leon Simon and La Tour d'Auvergne (1888); and Jean Bart and Emile Lemoine (1889). Most of these varieties, however, are not now in commerce having been replaced by better kinds.

As time progressed the younger Lemoine, Emile, gradually succeeded to the part his mother played in active hybridizing and began to fertilize the single varieties with the pollen of the double. This work was far more difficult and needed the steady hand and keener eyesight of youth, as with the single varieties it was necessary to open by hand the flowers while yet in bud, to remove the stamens and when ready apply the pollen from the chosen double flower, as otherwise the single varieties would have fertilized themselves naturally and interfered with the cross.

In particular the fine single variety *Marie Legraye* was used as a parent, crossed with double varieties, and most of the finest double white Lilacs of to-day come from this cross.

The following Lilacs have been introduced by Mr. Lemoine and his son:

- 1890—Mme. Lemoine, President Carnot, Linne and Dr. Jusieu (double).
- 1891—Claude de Lorraine, General Drouot and Mon. Lapage (single).
- 1891—Comtesse Horace de Choiseul, Belle de Nancy, and De Humboldt (double).
- 1892—Pierre Joigneaux and Mme. Abel Chatenay (double).
- 1893—La Mauve, Charles Baltet, and Souvenir de Louis Thibaut (double).
- 1894—Obelisque, Mme. Casimir Perier, and Louis Henry (double).
- 1895—Dr. Maillot, Grand duc Constatin, Monument Carnot, and Doyen Keteleer (double).
- 1896—Rabelais, Boussingault, Francisque, Morel, Abel Carriere, and Charles Joly (double); Congo (single).
- 1897—Mme. Leon Simon, Marechal de Bassompierre, Prince de Beauvau, and Guizot (double).
- 1898—Arthur William Paul, Dr. Masters, Marc Mitcheli, and Colbert (double); Toussaint-Louverture (single).
- 1899—Comte de Kerchove and Wm. Robinson (double); Crampel, Negro, Volcan, and Othello (single).
- 1900—Georges Bellair, Edouard Andre, Maurice de Vilmorin, and President Viger (double).
- 1901—Le Printemps, President Loubet, Dr. Troyanowsky, and Mme. de Miller (double).
- 1902—De Saussure, Jeanne d'Arc, Paul Hariot, and Viviani-Morel (double).
- 1903—Dame Blanche, Gaudichaud, and Miss Ellen Willmott (double); De Miribel, L'Oncle Tom, and Pasteur (single).
- 1904—Mireille, Deuil d'Emile Galle, Waldeck, Rousseau, Banquise, Tagioni, and Etoile de Mai (double); Reaumur and Christophe Colomb (single).
- 1905—Charles Sargent, Duc de Massa, René Jarry Desloges, Desfontaines and Maximowicz (double); Montgolfier and Edmond Boissier (single).
- 1906—Siebold, Victor Lemoine, and Montaigne (double).
- 1907—Jules Ferry, Leon Gambetta, Godron, and Planchon (double).
- 1908—Edmond About and Jules Simon (double).
- 1909—Hippolyte Maringer, Mme. Antoine Buchner, and Olivier de Serres (double); Decaisne, Milton, and Tombouctou (single).
- 1910—Comte Adrien de Montebello, and Marechal Lannes (double); Cavour and Vestale (single).
- 1911—President Fallieres and Henri Martin (double); Gilbert, Danton, and Ronsard (single).
- 1913—Naudin, Thunberg, and President Poincaré (double); Marceau, Laplace, Lavoisier, and Monge (single).
- 1915—Emile Gentil, Paul Thirion, Claude Bernard, Jean Macé, and Magellan (double); Diderot and Mont Blanc (single).
- 1916—Edith Cavell, double pure milk white, buds cream and sulphur; Julien Gerardin, double soft lilac; Saturnale, single bluish mauve; Vesuve, single claret purple, nearly red.

So much for what we have before us to-day, but the end is not yet for as Mr. Emile Lemoine informs us he has also produced some interesting hybrids between *Syringa Giraldi*, a new early flowering species from Western China and the Common Single and Double Lilacs. These hybrids are very ornamental and valuable shrubs, they grow very fast, some of them making as much as five feet of

bered—that is, in this country to be really successful, Lilacs should be had on their own roots, not grafted. It is common practice in the European nursery trade to graft Lilacs on Privet, with the result, all too often, that ultimately the planter has a fine collection of Privet, the Lilacs having succumbed to the borer. If, however, these plants are on their own roots, the attack of the borer simply



The present day perfection of development in the Lilac is fairly represented by Miss Ellen Willmott which has large branched thyrses of large double white flowers

new growth a year; flower a week or ten days before the other Lilacs and are both double and single. Those already in commerce are: *Lamartine* and *Mirabeau* (single), *Berryer* (Semi-double), and *Vauban* and *Claude Bernard* (double). What does the future hold?

ALTHOUGH the Modern Lilac has been given considerable attention in some places, yet it may be questioned whether the full merits of the modern improvements are really appreciated. People buy "Lilacs," and they get—just Lilacs. What a pity when there is such a selection of these improvements that, from a flowering standpoint, are so vastly superior. There is one point to be remem-

bered—that is, in this country to be really successful, Lilacs should be had on their own roots, not grafted. It is common practice in the European nursery trade to graft Lilacs on Privet, with the result, all too often, that ultimately the planter has a fine collection of Privet, the Lilacs having succumbed to the borer. If, however, these plants are on their own roots, the attack of the borer simply

Lilacs may be planted in fall or spring. The Common Lilac starts growth very early in the season and is best handled, therefore, in early fall. To achieve the maximum of floral beauty, the Lilac needs pruning every year, otherwise, it has a tendency to grow to too great a height so that the flowers are not easily seen. Cut off all flower clusters as soon as blooming ceases, and it is a good thing also to remove suckers from the base, especially in the case of the Common Lilac. Remember that the Lilac flowers on the wood of the previous season, and therefore must not

be cut back in winter, nor, obviously, in spring. The only winter pruning that is permissible is the cutting *out* of weak, crowded or superfluous branches, but do not cut *back*. Overgrown bushes that are to be brought into control, should be cut back in the winter time in order to get it down where it is wanted. This, of course, sacrifices the flower for the season, but it induces strong breaks and well-formed bushes for the future. Do moderate pruning and disbudding just after the blooming period, and generally thin out and attend

to the symmetry of the bush but be cautious over pruning of any sort. It is easy to do the wrong thing.

Propagation is by cuttings of the young wood in early summer. Placed in sand in a hotbed kept shaded, they will root freely in about two months. Layering can also be done in late summer, and of course, suckers, where such are developed, can be removed in spring with their roots, and if cut back will start readily.

Two well known public institutions have

representative collections of Lilacs: the Arnold Arboretum, although it lacks some of the most modern varieties, and the Park System of the City of Rochester, New York.

As to planting, a common fault is overcrowding, not giving sufficient room. In the private collection of Prof. Sargent, Brookline, where the plants have been given ample space to develop, it can be seen that they require twenty to twenty-five feet, and yet we plant Lilacs three feet apart!

VICTOR LEMOINE, PLANT HYBRIDIST

AN APPRECIATION

MEASURED not alone by the number of novelties, but also by their intrinsic value to the gardens of the world, Victor Lemoine, the great French nurseryman, deserves credit as the greatest plant breeder, "creator" if you will, that the world has ever seen. Not a person who grows plants in a garden but what at one time or another, if not always indeed, has handled something that was the product of this master craftsman. His modest, retiring nature found a large share of its reward in the mere achievement of the results, yet for many years horticulturists looked forward eagerly to the announcements of novelties in the annual catalogue of this redoubtable nurseryman.

Very often other hybridist plant breeders, who have made for themselves reputations along special lines, devoted their time and energies to the development of one particular group of plants; but Victor Lemoine accomplished in fully a score of different lines, results that in each would have sufficed to build the reputation of any one man. How many people to-day even have a ghost of an idea of the debt of reverence due to the memory of this transcendent genius?

Elsewhere in this number of THE GARDEN MAGAZINE reference is casually made to the man's achievements in Lilacs, and Deutzias, and Astilbes, and these are but typical instances of what he did in his little nursery at Nancy.

Victor Lemoine came from a long line of descent of practical horticulturists. For generations back his ancestors have been gardeners and nurserymen. He was born at Belme, Lorraine, October 21, 1823. He died December 11, 1911, being then in his 89th year.

After completing his studies at college and before establishing himself in the place which his name has largely helped to make famous, he devoted several years to traveling and working in the leading horticultural establishments of his time, according to the custom of the profession in the old world. At that time Mr. Louis Van Houtte had a famous establishment in Ghent, Belgium, and part of the time Lemoine spent there. It was in 1850 that he established himself in a very small way as a florist and gardener at Nancy where he earned the admiration and veneration of the craft the world over. And in his later years he was much honored by horticultural and scientific organizations of France and Europe, and he was the first foreigner to receive the Victorian Medal of Horticulture of the Royal Horticultural Society, and only a few weeks

before his death the Massachusetts Horticultural Society honored itself by granting Lemoine the George R. White Medal of Honor.

In a short note such as this, it is quite impossible to even catalog the multitude of valuable productions and introductions of Victor Lemoine. It would require a space of several pages in small type! Has any other plant breeder, living or dead, produced a tithe of the permanent worth of this master craftsman? Casual reference has already been made to one or two lines of his activity, and we



VICTOR LEMOINE

Born October 21, 1823; died December 11, 1911. In his world famous nurseries at Nancy, France, he worked incessantly in the hybridizing of garden and greenhouse plants and to such purpose that there is not a garden to-day in which the products of the master genius are not familiar friends

should remember that he was concerned very largely in the modern Gladiolus, and to show still further diversity, reference need only be made to the Begonia Gloire de Lorraine which alone is such a popular plant in its particular class that its absence would now be greatly missed. Sixty years of continuous plant production is in itself a wonderful record, and the work is still continued in the succeeding generation under his son, Emile.

It was in 1852 that the first mention of Lemoine's work was found in the *Revue Horticole*—a double flowered Portulaca. Two years later, under the name of Gloire de Nancy, came the first double Potentilla, and at the same time the first Streptocarpus hybrids which later on were developed by another establishment into some of the most pleasing of greenhouse plants. It was about the same period that Lemoine turned his hand to Fuchsias and introduced many varieties, including the double flowered hybrid Solferino.

Work thus begun was continued without cessation, but the creation of hybrids and crossings was occasionally varied by the introduction into commerce of new species or varieties for which he was always on the lookout. Thus a white form of Spiraea callosa came in 1862; in 1866, Hydrangea paniculata grandiflora, and in the same year he produced and sent out the first genuine double-flowered Zonal Geranium, Gloire de Nancy. In 1868 he began the introduction of his hybrid Weigelas, which have not been superseded to this day. It was in 1874 that the horticultural world was surprised by the first double tuberous Begonia, and this great genus in all its other branches has from time to time been greatly benefited by this one man's work. Indeed without Lemoine the Begonia would probably never have "arrived." He introduced new perennial Phlox and the hybrid large-flowered Clematis in great number, including, more recently, the reddish-flowered Andre Leroy and others.

Space forbids anything like even a partial catalogue of achievements of which, however, a fairly complete list will be found in "Horticulture" December 23, 1911. Our purpose has been to show in a broad way how much we owe to Victor Lemoine. No mention has been made of the greenhouse plants and of the improvements of previous crosses which continued to pour out in such profusion from his nurseries. During the last fifteen years of his life he devoted his energies to the improvement on Deutzias, Peonies, Hydrangeas, Weigelas, Gladiolus, Astilbes, Lilacs, Delphiniums, Pyrethrums, Heucheras and Pentstemons; but in passing, mention must in justice be made to the fact that he worked also with Montbretias, Dahlias, Saxifrages, Chrysanthemums, Bush Honeysuckles, Spiraeas and Phloxes the results of which we all enjoy the year round.

Truly as we look back we are positively appalled at the immense volume of results, and again we ask: Has any other plant creator given us as much? L. B.



Along the path set with stepping stones is the real perennial border, widened year by year till now it is seven feet wide and is rich with a succession of bloom throughout the season

The Evolution of My Garden

MRS. GREENLEAF CLARKE
Massachusetts

HOW THE GARDEN OF DELIGHT GREW FROM THE PRACTICAL VEGETABLE PATCH GIVING FLOWERS THROUGHOUT THE SEASON—THE WAY FOR THE BEGINNER

FROM personal experience I can tell those who look with longing eyes on a neighbor's lovely garden with its dainty and welcome blossoms heralding the advent of spring and on through to the rich and gorgeous blossoms of May, June, and July, into the gay annuals of August and September until the Japanese Anemones and Chrysanthemums bid us farewell in October and November, that this is all possible for you without the aid of a gardener and even with no experience, provided you are willing to become acquainted with the plants through personal contact, the glory of success, the sorrow of failure, a little patience and some work.

The garden of which I tell is located on an ordinary city lot, 60 x 120, which also includes the house. It started with a row of Sweet Peas, the trench being made with a trowel, little or nothing known about flowers, until as year by year has passed (seven in all), the lure of the garden has become more and more alluring, and I now am deep in the throes of "gardenitis."

The sixty-foot border of Sweet Peas, which was first made to separate the main lawn from a very good sized vegetable garden, has gradually widened, first taking one row of beans, then another, then robbing the cucumber patch!—Who does not know the

symptoms?—until finally this year the vegetables had to go and a Rose and Chrysanthemum garden takes its place. We no longer eat!

The house, with the lawn surrounding it, occupies about one half the lot; the garden has the rest. Across the back of the lawn runs a border 60 feet long, with a 4-foot path taken out, not in the middle, but divided according to the ratio of 2 and 1. The 4-foot path runs directly to the back of the lot across which is planted an Iboya Privet hedge 6 feet high. This hedge encloses the back and sides of the garden. The border 20 feet and 35 feet long is 2 feet wide. It is bordered on the garden side with Box edging, and in it are planted Darwin Tulips. Those wonderful Tulips with their pastel colorings, accented here and there with a rich, dark neighbor, during their season are the queens of the garden. After they have gone, I plant in between them (for I have left the bulbs in the ground with good success) pale pink and white Petunias, and mixed Drummond's Phlox, with a border of white Verbenas next the Box edging, and the other side a border of blue Ageratum with white Sweet Alyssum. This sounds like a woeful mixture and would never appeal to one of aesthetic taste! But actually it is charming, and I came upon it quite

by accident. Previous years a hedge of mixed Zinnias had been planted there, which were most satisfactory, but having had the Zinnias for some years and desiring a change I thought I would try the Phlox. An ounce of seed planted in a cold frame was a failure. Obtaining a few plants only from the seed planted, I bought from the florist four dozen Petunias, two dozen white and two dozen Rosy Morn. These (true to color of course) were planted in between Phlox already raised with some old seed sprinkled in. The border of white Verbenas had been planned, having seen it at the S. A. F. Convention Gardens in Boston, a few years ago. Two packets of seeds furnished me enough plants. The Ageratum and the Sweet Alyssum sowed itself. I expected a conglomeration of disappointment, and I was disappointed—but happily so. Such a dainty, cool, lacy, delicate border!

Next this narrow border outlining the lawn, running parallel with it, is a 60 foot path, 4 feet wide, set with stepping stones and grassed. These stones I set myself. A great feat done one March when the spring breezes were spring breezes and the lure of the garden called to me. Along this path is my real perennial border; the original one beginning with four feet, and widened every year until



Beyond the arch covered with Roses lies the Rose and Chrysanthemum garden which formerly was a vegetable patch

now it is 7 feet wide, with one strip 35 feet long, a path four feet wide, and another strip 20 feet long. Then comes another path parallel with this border 60 feet long.

An arch separates the perennial border from the Rose and Chrysanthemum garden, which was formerly a vegetable garden, and in this garden too I have an opportunity to enjoy a few special annuals and Gladiolus.

THE FIRST STAGES

When the perennial border was first started seeds of Foxglove, Larkspur, Sweet William, and Canterbury Bells were planted with roots of Phlox and Coreopsis. Nothing had been thought about color schemes, "well considered" planting, height, or anything of that sort. They were just plain "planted." But the ground had previously been enriched for vegetables, was good to begin with, and what was not was made good with fresh loam, and the plants grew and grew like Jack's beanstalk; they grew to heaven. The blue of the sky kissed the blue of the Larkspur. Is there any blue so heavenly as the Larkspur! I will never forget those twenty or thirty great plants as big as a bushel basket, with those glorious light and dark blue spikes. They were magnificent. I remember that summer I had a border of white Candytuft in blossom at the same time, which looked like great white drifts nestling against the base of the Larkspur. Verily the clouds dropped down to earth and visited my garden! I would stand enraptured before those wonderful plants.

But alas! one night a thunder storm came and with it a heavy wind, and it was then I commenced to learn. I wonder if we always have to learn life's lessons by thunder storms. Alas! in the morning on running to the window to feast my eyes on that sea of blue—blue and clear as the bluest sky—they lay stricken on the ground like so many fallen soldiers, not dead, but brought low. Oh the wreck of it all! With long stakes in my hands, I went into the garden and tied up the

broken, brittle plants, so glorious the day before, so ingloriously brought low. My heart ached—but I learned my lesson. I then commenced to read, study and observe. And from that time, I have striven to give my plants their best and most propitious setting. I then began to realize after the Larkspurs were cut down the awful gap it made, and year by year I have been learning what to have and what to omit in order to have color as well as the things one loves best. That is one reason an old garden has such charm. It has been years in the making by loving hands and eyes.

REMAKING THE BORDER

The fall following disaster to the Larkspur the plants were distributed through the perennial borders which I commenced to remake. At the sides of the garden and in the corners by the Rose garden Heleniums and white Boltonia were planted. These blossom in the early fall and continue until cut down by frost. The garden is one mass of gold and white in September, so graceful and airy—a picture to behold. In front Larkspur and white Foxgloves are planted at intervals, which are glorious in late June and July and beneath and below is a hedge of pink and white Asters and bordering the paths Box edging. Here and there are German Iris with now and then a group of auratum and speciosum Lilies. Pyramidal Arbovitae trees are used to some extent in this garden as accents. At the base of one of these trees, where is the stump of an old apple tree, a few rocks have been piled on which rests a bird bath. At the foot of the old tree is planted a Boston Ivy which weaves itself in and out among the rocks and up on to the bird bath, making a lovely picture as well as a welcome spot for the birds.

In the springtime yellow Narcissus borders the walks, rising between the little box plants. Blossoming at the same time are groups of the dwarf border Iris of purple. The garden is then one glory of purple and sunshine. Harmonious combinations of Darwin Tulips are planted through the garden, so when the Narcissus are gone the Tulips are there to greet us, and these in turn lapse over until the German Iris is there in all its richness and beauty. I sometimes cannot tell which I love most; the German Iris or the Larkspur. The German Iris is scattered through the borders in great quantity, overflowing into the rose garden and a neighboring lot. Then come the Larkspur among which are planted groups of Madonna Lilies, the blue and white being most effective.

THE SEASON OF LILIES

By the time the candidum Lilies have gone, the regal Lily begins to blossom. What a wonderful Lily that is, with its long, full graceful throat of yellow, its wax white petals slightly turned back, its glorious orange stamens and the outside delicately flushed pink. There is so much substance to the whole blossom, and above all its delicate, delicious odor. That gorgeous Lily I find hardy thirty-three miles north of Boston, and it multiplies. It fills a place when the glory of the July garden is passing, and the Japanese Iris are waning.

A very satisfactory combination was found this summer with German Iris, Dr. Bernice, yellow Columbine, and back of this the yellow Day Lily. And who can be without that magnificent Iris, Black Knight, with its rich Pansy-like blossom and glowing orange

beard—the very last to blossom with me, blossoming with some of the Larkspur? Both these things are high-priced, but worth it.

After the Larkspur leaves the garden then come the Phlox followed by the Liliun speciosum in profusion—all lovely and interesting. A large plot of Japanese Iris occupies the centre of the longer perennial border. In drifts between are planted annuals in solid colors, such as Snapdragons, Scabiosa, Calliposis, Calendula, etc. Back and at the sides of the bird bath is an effective combination of Liatris and Physostegia. They are lovely together.

Now step through the arch down the Rose walk, I call it. The path is Box bordered as all the paths are, and either side are Roses, for the most part Hybrid Teas. One section is devoted to briar Roses, the lovely yellow, single and double ones. On the trellises are Tauschendschon, and that beautifully decorative Silver Moon. The foliage is clean and of such lovely color that if there were never a blossom that Rose would still be in the garden. These Roses are being trained to run from one trellis to the other on small cable or wire. In between the Roses are planted quantities of Gladiolus.

THE MEASURE OF MERIT

I have reached the stage where I discard all plants or blossoms that I do not consider lovely. In a small garden one cares to afford space only for the blossoms that are the choicest, so with the Gladiolus I cultivate those I love best. On the farther side of the rose garden is a good-sized border of Chrysanthemums. Annuals border this whole garden. This portion is comparatively new, and it has not yet been worked out to perfection. Last summer I tried Statice in various varieties, with disappointing results. The blossoms are all right, but it takes such quantities to make a show, and for a small garden are impracticable.

I cannot let the Hollyhocks pass by without mention—that garden favorite. They are lovely down in one corner with the hedge for a background; and Sweet Peas! One

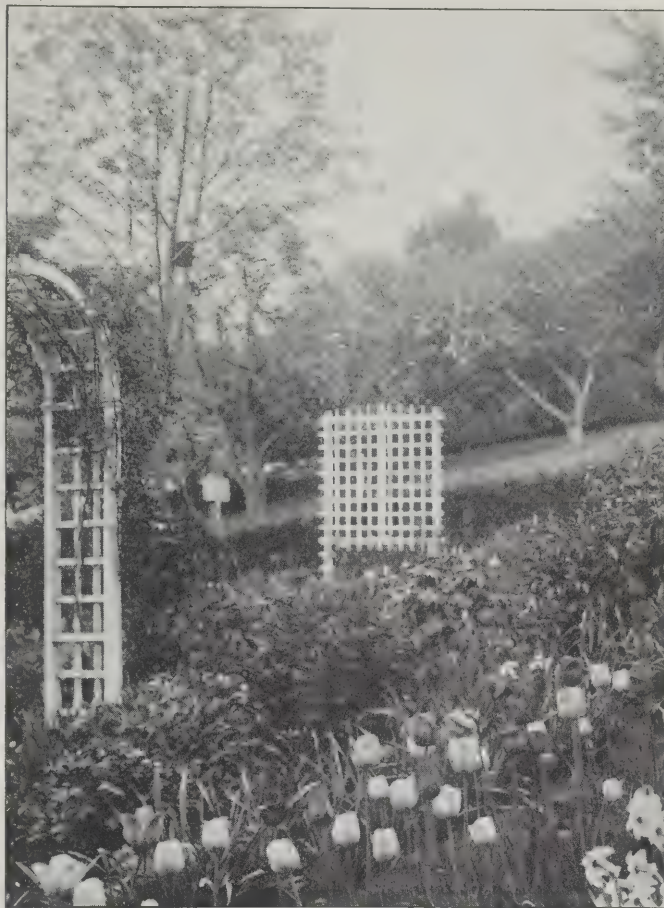


The bird bath is an appropriate addition to the garden, inviting the birds to linger amid the flowers

must have them. They are not picturesque growing, but so sweet smelling and fragrant. For years I have been experimenting and pondering how to plant so as not to spoil the scheme of the garden and yet have the blossoms. Finally I have stumbled upon a plan which I find good for my garden. A dozen to fifteen plants planted separately in rich soil will supply enough blossoms for a handsome display in the house. Plant the seed in February in small pots in the house, 3 seeds to a pot. When they come up, pull out the two weakest plants, leaving one sturdy plant. After it has sent out four to six leaves nip off the top. This causes it to branch. As soon as the weather permits, generally here the last of April or early May, I set these plants out here and there in an open space. Then I transplant near it for the Sweet Pea plant to climb on a single plant of *Boltonia*. The *Boltonia* sends out few leaves, two only at intervals up the plant for several feet. The Sweet Pea tendrils work their way in and out up the stalk, and lo, you have blossoms on a live stalk. If the sweet Pea withers all you have to do is to pull off the dead vine and you have a plant to take its place that will send forth a lacy white bouquet in the fall when one wants flowers so much.

PEONIES, THE GARDEN'S MONARCHS

One cannot do without those monarchs of the garden—Peonies. Where pray have these been placed? I have two stunning plants in my 7-foot strip to



The trellises and arches help to frame the garden views and focus the sight onto proper places. Rambler Roses drape them in June

help out with color in June; then a hedge of them has been placed either side of the

lawn, continuing the outline of the Tulip border up toward the house. In front of my porch overlooking the garden is a hedge of Elizabeth Campbell Phlox, back of this white Foxgloves, and in front Columbine. At either end is that lovely single Peony *Araeos*, which blossoms with the Columbine. With pink and white, it makes a lovely combination. I cannot say good-bye to the fall blossoms without mention of the Japanese *Anemone*, pale pink and pure white. They are so lovely they just pull at the heart strings. I have a hedge of them in front of my cellar window. The lot is so shaped that the garden is on a slope, so at the rear of the house is a deep brick foundation of, I should say 12 feet. This wall is covered with Japanese Ivy, at the base of which is a Barberry hedge which is kept clipped. In front of the hedge are the Japanese *Anemones*. It seems to be just the place for them, for they flourish so vigorously. Here in the spring time is a charming border of yellow Pansies, Forget-me-nots, and English Daisies, and rising from the Darwins is Tulip *Gesneriana lutea pallida*, which is pale yellow. That makes one of the most exquisite borders you would ever care to see.

Such a joy is even a small garden, that home would not be home without these beautiful blossoms, that come to welcome us year after year. It is something any one can possess with not too much work, and such work as there is brings with it health, joy, and happiness.

The New Race of Hardy Astilbes A. E. THATCHER

Maine

RECENT IMPROVEMENTS UPON THE WELL KNOWN "FLORISTS SPIRAEA" THAT HAVE GIVEN A GROUP OF GRACEFULLY FLOWERED PLANTS IN PINK, ROSE AND WHITE, FOR BOTH BORDER AND GREENHOUSE

THE well known "florists Spiraea," or correctly *Astilbe japonica*, together with the best of its numerous varieties and hybrids have for years been popular, both in private gardens and commercially, for Easter decoration and cut flower purposes. Indeed many thousand roots are imported annually from Europe as their adaptability to all kinds of floral work and the simplicity of their cultivation made them practically indispensable. Now, although hardy and suitable for the outdoor border they have never been very common in the hardy garden and it is their value in this regard that I would now emphasize and especially to draw attention to the superb race of plants produced by the European plantsman M. Arends and generally known as the "Arends Hybrids."

Previous to the appearance of these hybrids some very fine varieties had become popular, of which Peach Blossom and Queen Alexandra are well known examples. That redoubtable hybridist, V. Lemoine was also responsible for the introduction of some greatly improved varieties, some of the more noteworthy being Nuée Rose, Panaché, Mont



Among the new Arends Astilbes is a range of color from white and cream to pink and rose-purple, with height ranging to six feet. Excellent for the greenhouse

Blanc and Nebuleux. The Lemoine hybrids are all excellent garden plants, much stronger in growth than the older japonica forms and including many delightful pink and rose shades, the result of *Astilbe chinensis* and others being used in their making.

It remained, however, for another Chinese species (or two species) to produce the magnificent Arends Hybrids and our gardens are beautified to-day with what hardly seemed possible a short decade ago.

Something more than a dozen years ago Mr. Wilson introduced from the wilds of China two remarkable species of *Astilbe* which were destined to play an all-important part in the production of the beautiful hybrids we now have. *Astilbe Davidi* is perhaps the better known of the two, and more generally planted on account of the conspicuous red of the flowers, but its congener, *Astilbe grandis* is also a desirable garden plant with creamy white flowers. Under favorable conditions these two plants soon attain their maximum size and are conspicuous objects in the garden. Both have large spreading leaves but of an entirely different character; those of *Astilbe Davidi* being very dark green and the leaflets narrow, while

Astilbe grandis is pale green and broad. The flower stems, produced during the latter part of July and August, grow to a height of five to six feet, which makes them easily the giants of the family, and their great vigor and extreme hardiness recommend them strongly for cultivation in American gardens.

Although well adapted for growing among other herbs in the herbaceous border I have found them most valuable for growing in the semi-wild garden, especially near the water's edge, where the rich reddish-purple coloring of *Astilbe Davidi* is seen to the best advantage.

M. Arends early recognized the potential value of these two species, more especially *Astilbe Davidi*, for hybridizing, and the results of his labors we can now enjoy. The variety of hardy herbaceous plants is now very large and while there are many of great beauty there are none more useful nor more beautiful indeed than the "Arendsi Astilbes." The fact that they are able to adapt themselves to a great variety of soils and situations makes them equally valuable for the amateur's garden or for the large estate. While they succeed—that is will grow and flower—with the smallest amount of care, yet it should be borne in mind that Astilbes will repay any extra attention one may give; and to have them appearing at their best they should be copiously supplied with moisture at the roots during the growing season. An ideal situation where they are completely at home and seen to the best advantage is on the margin of a pond or stream; but failing this I recommend selecting, if possible, a position where the sun's hottest rays do not reach them.

Before planting have the soil deeply dug or trenched, and anything which will add food, such as decayed leaf mould or well rotted manure may be freely incorporated. The preparation of the ground is important, and if done well the plants will continue to increase in vigor and need little attention for several years. As the crowns increase rapidly it is advisable to divide and replant them occasionally.

There are now quite a number of very distinct varieties which are annually being added to by our European friends, and where space permits the very best results are obtained by planting the different sorts in separate groups or beds. Where this can be done the effect is extremely beautiful, as nearly all the varieties have very light, feathery spikes when fully

expanded and the colors are of the more delicate shades. A mass of such a variety as *Ceres* or *Gloria* in its season produces in the pleasure ground or by the water's edge a singularly beautiful effect.

One of the most noticeable results of the introduction of the Chinese species into these hybrids is their late flowering season, which greatly enhances their value as garden plants, and it is possible by a judicious selection of varieties to have a wealth of blossom from the middle of July till well into September and this too from May planting. They will be greatly appreciated at that season, when the earlier summer flowers have passed and the



Here's a suggestion for the massed effect of Astilbes. The plants are perfectly hardy and the graceful flowers have an individual airy charm all their own. Why not grow Astilbes in the mixed border?

Phlox and early autumn plants have not commenced to blossom.

These new hybrids are known collectively as the *Astilbe hybrida* group and the number of varieties which have received names and have been disseminated are all excellent garden plants varying considerably in their season of blossom, color and form. Having for some years grown them in quantity and proved the merits of each I have selected those which seem

to me the most beautiful. If one has sufficient room, however, they are all worthy of inclusion.

Ceres is one of the first to flower and is one of the most beautiful. The spikes are about three feet tall and very branching, and when the delicate pink flowers are fully opened they produce a striking mass of color.

Gloria is also a variety of great merit and if planted in a group the deep salmon-pink plumes are very handsome.

Venus blooms at the same time but the flower stems are a foot taller and the color deep rose.

Vesta flowering some two weeks later than the foregoing (and a plant of exceptional merit) has numerous rose colored plumes fully four and one half feet tall; and, while the foliage of all the varieties is good, in this the leaves are specially ornamental, being exceptionally broad and vigorous and are produced up the flower stems for fully half their height. *Vesta* would be a desirable variety to grow for the handsome foliage alone and as a pot or specimen plant is most valuable.

White Pearl is conspicuous when massed and remains a long time in good condition.

Rose Perle is very attractive, the white flowers being overlaid with a delicate silvery sheen. *Opal* is a favorite with all who see it on account of the delicate pink coloring. It is a charming plant.

Grano is a new variety of exceptional merit and one of the best of this new race. It is a very free grower with a loose spike and graceful habit and the rich salmon-pink color finds many admirers; for room decoration in a cut state I do not know of anything more valuable.

Salland is a giant in stature and admirable for naturalizing or planting by the water's edge. In a damp situation the flower stems will grow fully six feet high and the rich red color is most effective. It is very similar in every respect to *A. Davidi* except that there is

an absence of any purple coloring in the flowers.

Moerheimi is an excellent companion to *Salland* and is also a recent addition which grows equally tall but has white flowers.

The above mentioned list is by no means exhaustive and there are a number of others equally deserving of inclusion but those named are fully representative and distinct.

Prepare in May for Winter Flowers W. C. McCOLLOM

New York

A CATALOGUE OF PRESENT ACTIVITIES IN THE GREENHOUSE THAT WILL ENSURE CUT FLOWERS FOR THE HOLIDAYS

IF YOU would have real chrysanthemums in the fall, the greenhouse during summer must be kept occupied with the young plants. And where the glass is available it is the most natural thing in the world to devote a large space to these flowers because there is nothing else in their season that will give such bloom.

There are numerous ways of growing Chrysanthemums: They may be grown in pots, for example, and if pinched frequently will make nice little bush plants for house decoration. The large bush plants so familiar at our fall shows are of course propagated immediately after the flowering season each fall, but small plants in 4-inch pots now can

be planted into 8-inch pots and will make good-sized plants by the time they finish. For cut flower work the plants can be planted in benches, or larger pots, and grown to one or two stems. In any case all Chrysanthemums should be given their final shift now, use plenty of crocks to assure perfect drainage and the soil should contain a good percentage of chopped

sod, and bone meal in the proportion of 1 to 10 is invaluable, firm the plants thoroughly when planting, using a potting stick. Keep the plants *well sprayed*, indeed, several times a day on bright days is none too much.

CARNATIONS INDOORS OR OUTSIDE?

THE chief objections to benching the plants are that you can't use the house for any other purpose during summer, and oftentimes the plants get infested with red spider from insufficient ventilation, yet if you prefer the method of planting directly into the greenhouse, the plants should now be set the customary distance apart (from 12 inches to 15 inches according to the variety), the benches first having been cleaned out of all old soil and painted with a coat of hot lime, then filled with good turfy loam from the compost heap. The other method of handling is to plant the roots outdoors and grow them out there.

For outdoor planting the rows should be at least 18 inches apart so the ground can be worked properly with a cultivator, the plants can be set out from 9 to 12 inches apart in the row, they should be pinched regularly, cultivated regularly, and sprayed with bordeaux or copper solution at frequent intervals.

DRY OFF THE ORCHIDS

PRACTICALLY all winter flowering Orchids require a rest during the summer to ripen up the bulbs; this is only giving them the natural weather conditions they enjoy in their natural habitats. As these plants are usually

grown in a high temperature it is impossible to rest them under such conditions, and the best method is to place them in a small house which should be shaded by a roof trellis of some description. Under no circumstances allow the plants to dry up so as to turn the foliage yellow, but they should be partially dried to ripen up the bulb and harden the foliage, the plants should be sponged if they are infested with scale or other insects. Orchids flowering during summer or in active growth should not be treated in this manner.

Gardenias intended for flowering next winter must be kept growing vigorously, as this is the season to put all possible growth on the plants, since later on they must be rested up before the forcing starts. See that the plants are well supplied with plant food, keep them well sprayed using a mild insecticide occasionally to keep down mealy bug and other pests, keep all flowers picked off, and keep the atmosphere charged with moisture and heat at all times.

WHERE FRUIT IS GROWN

KEEP the laterals picked from your grapes. The secret of good grapes is constant pinching. You never see good grapes where a monthly assault is made on the grapery and great quantities of growing shoots are removed at one time; do a little every day, never let the growth get so large that you need a knife, just the thumb and forefinger should be all that is necessary to remove the laterals. Proper watering of fruit borders is an art, it is hard to tell from surface appearance the true condition down in the border where the bulk of the roots is located. A good scheme is to make holes with a small crowbar to test the condition. Liquid manures are also useful during the growing season; these can be mixed in barrels and dumped right on the border, the top, being afterward raked.

POINSETTIAS FOR CHRISTMAS

THE Poinsettia is one of our best Christmas plants, and is always acceptable as a cut flower or in pots. The old stool should be brought forth now and started into active growth, make cuttings of all the young shoots. They root readily. The cuttings must have a high temperature and bottom heat is preferred; if no bottom heat is available, build a little glass propagating case where the high temperature can be held.

Pot plants, such as Cyclamen, Primula, etc., will by now be out in the frame for the summer, set on cinders to assure good drainage. Keep the plants sprayed frequently but very lightly.

Winter flowering greenhouse bulbs such as Callas, Freesia, etc., in pots, should now be absolutely ripened up, by being laid on their side in a dry place where no water will touch them, they can be left in this condition until later in the summer when it is time to pot them up for forcing operations again.

GREENS FOR CUT FLOWERS

CUT greens to mix with flowers are usually short each winter. The time to provide against any event is now. Beds of Smilax or Asparagus for cutting can be planted now; spaces underneath the benches and right on

the edge of the walk can be used for the more hardy types of Fern such as Crytomium, Pteris, etc., as they do not take up any valuable bench space and they will be one of the most profitable yielders. Don't neglect to plant plenty of Ferns and use a good range of varieties and a rich yet light soil.

Bedding plants of all kinds can be set out late this month; where any quantity of bedding is practiced this is quite an item, releasing a large amount of greenhouse space that may be devoted to other things. Of course, before setting out the plants are to be properly hardened off so they won't get checked after planting.

AMONG THE ROSES

PLANT Roses this month; the benches being first painted with hot lime, and then some rough sod and manure placed in the bottom to prevent the soil falling through the openings in the benches; then the bench should be filled level with the top of the sides, with good finely chopped soil from the compost heap. It can then be marked ready for planting. After planting the soil should be well firmed, Roses do not like a poorly drained soil, and a loose porous soil does not drain well. A brick may be used to firm the Rose bed, but don't on the other hand get it unduly hard. A little judgment is necessary. When watering simply apply water to the bench adjacent the plant, the other portion of the bench will only need moistening occasionally. Keep the young plants well sprayed and ventilate freely.



Cucumbers of the English forcing type are a splendid crop for the greenhouse. Sow the seeds in pots, and when well rooted, plant in hills



When the roots form a perfect net on the outside of the earth is the proper time to repot plants. Knock them out and examine them

Novelties in Summer Flower-roots and Bulbs

A REVIEW OF THE SEASON'S OFFERINGS

By THE EDITORIAL STAFF

In the March issue of THE GARDEN MAGAZINE we presented a review of the plant and seed novelties for the current season, but withheld any reference to the "Summer Flower-roots" till the present more opportune season.

What's New in Cannas

THE usefulness of the Canna as a summer bedding plant stimulates hybridizers in the production of new colors. This year's crop of novelties displays a tendency on the part of the introducers to be very exacting that the new sorts surpass hitherto popular standards. Simply to be "different" fails to suffice. The following are said to be of outstanding merit.

Eureka, a white-flowering sort, bears trusses of substantial flowers. (Dreer).

A Yellow King Humbert, a yellow sport of the well-known King Humbert, grows about four feet high. Individual flowers are said to measure seven inches in diameter. A vigorous grower. (Vaughan).

Snow-Queen, four feet in height, is another step toward a good white bedding plant. A close examination reveals faint pink spots, on the petals. Flowers are six inches across, with rounded petals two and a half inches broad. They are borne in large clusters above the foliage, on erect, branching heads. *Aurora*, five feet high, has green foliage. Flowers scarlet, broadly edged with pure yellow. *Druid Hill*, a dark-stemmed, dark-foliaged Canna, four feet tall, with crimson flowers of average size. *Morning Glow*, four feet high, provides unusual color contrast through foliage of olive-green, striped and veined with bronze. Flowers soft shell-pink, with orange-red centre. (Conard and Jones).

What's New Among Dahlias

THE past year has witnessed remarkable progress in Dahlias. While the Great War has temporarily closed many avenues through which novelties generally reach us, it has likewise stimulated the American hybridizers' activity in unprecedented fashion.

One amateur Dahlia enthusiast in particular, C. L. Mastic, of Portland, Oregon, has broken all records in the production of hitherto

unknown, bizarre and fantastic forms of Dahlia Seedlings. As the result we shall soon have a new and distinct class of Dahlias—orchidaeflora perhaps.

One Indiana grower states frankly "we are preparing to introduce several new Dahlias—about a hundred varieties—next season, but they will be named and placed on the market through shows first, before cataloging. In the case of this grower we wish to record remarkable efforts and results to improve upon the foliage of the Dahlia plant. A veritable riot of variations in foliage has followed the hybridizers' attempt to call into existence more decorative foliage besides more ornamental flowers. As the result, Dahlia foliage varying in appearance from that of a heavy Magnolia leaf to that of the finely laciniated and serrated Mustard foliage, now adds difficulties to the Dahlia lover's selection of varieties that would best fill his (or her) needs. Another peculiar "break" in plant type confronts us with flower stems of Dahlias big enough and thick enough and strong enough to serve as "walking sticks" when divested of foliage!

From North Carolina comes the news that, despite the world conflict, English growers have developed scores of new varieties. Indeed, the increasingly popular Peony-flowered type promises to have the same general effect on Dahliadom as the arrival of Spencer Sweet Peas had among Sweet Peas.

It well behooves American Dahlia growers to be on the alert, lest the hopeless confusion in nomenclature, as now existing in Roses, Sweet Peas, etc., be repeated among Dahlias. We are on the threshold of a new era in Dahlias. Size, shape, color, even general characteristics in form are undergoing complete transformation. Among the offerings listed here, are some that actually have been seen at exhibitions in previous seasons but which are now being offered to the public in quantity.

CACTUS AND HYBRID DAHLIAS

Mrs. A. K. White, snow-white, with long stems. Fine for cutting (J. Bassett).

St. Leonards is a clear, yellow, one half of the petals suffused with bright red, almost solid scarlet at the tips. A constant bloomer, lasting from five to seven days as a cut flower. Early frosts are said not to affect it (Tyler).

Mt. Shasta is a Hybrid Cactus, immensely large, full and deep. Light pink. *F. Earl James* is a Hybrid Cactus of deep mottled cerise-pink. *Mrs. Stillman* is a newcomer of the Cactus-Paeony type. A unique shade of clear pink (Stillman).

Centurion. Crimson scarlet, long, narrow, interlaced and twisted petals. *Melody*. Clear yellow for half the length of petals, rest pure white. *The Quaker*. Of delicate flesh pink, with white centre. *Gigantic*. Old-gold color. Described as the finest exhibition Cactus Dahlia yet produced. *Wacht am Rhein*. With broad petals on order of English Exhibition type. Rosy pink suffused with white (Tate).

Marguerite Phillips. Pure white, incurved. *W. E. Peters*. Crimson-scarlet, incurved. *Rev. A. H. Lowe*. Yellow, outer florets tipped and tinged with rosy shading. Incurved. *Uranus*. Creamy white, speckled and striped rosy pink to vermilion-scarlet. Incurved. *E. F. Harves*. Clear salmon-pink, straight-petaled. *Lorna Doone*. Yellow at

base, shaded pink and tinged with carmine (Alexander).

DECORATIVE DAHLIAS

Berch Van Hemstide is a large, pure yellow. *Mina Burgle* is a large, brilliant scarlet. *Santa Cruz* is a lemon-yellow, shaded with salmon-pink (Hallauer).

Seedling Dahlia *Five-Eighteen*. A large sort, frequently measuring six inches in diameter. The quilled flowers are canary-yellow, free from centre. Available in plants only (Michell).

Giant Geyser is the largest deep magenta carmine of this type. *Lady Betty* of light velvety purple color. *Lady Claire* is a bright fiery scarlet, heavily tipped yellow. *Lady Helen* presents a peculiar mixture of beautiful shades of pink and lavender-cerise. Bears flower upright, facing. Exceptional flowers have measured more than nine inches in diameter. *The Millionaire*, a light lavender, of exceptional size (Stillman).

Colosse de Lyon. Old rose suffused with golden salmon, shading to crimson-pink at tips. *Joffre*. Cyclamen rose, centre shaded deep rose. *G. De St. Victor*. Pale mauve-rose. *Loveliness*. Of the same shade of pink as *Delice* (Tate).

Tenor Alvarez. Violet-red, striped and splashed lilac and white. *Darlène*. Shell-pink, blending to white at centre. *Frank A. Walker*. Lavender-pink. *J. M. Goodrich*. Salmon-pink, each petal tipped primrose-yellow (Alexander).

THE PEONY-FLOWERED NOVELTIES

Mrs. H. J. Tily. A deep yellow with orange sheen (Bassett). *The Chatenay*, of the color of the Chatenay Rose (Hallauer).

Autumn Beauty is of sunset yellow, the base of the petals blending into a golden yellow on outer edge and *Poinsettia* is of Poinsettia color—bright scarlet with golden yellow centre (Knight & Struck).

The Stillman list includes: *Marguerite Clark*, typically curled and twisted petals, the face of which is of light cream color, the reverse side a cerise-pink. *Maud Tripp* presents an unusual color combination, consisting of purple-lavender, pink and yellow; and *The*



Mrs. Frederick Grinnell (Rooney). The pink Peony-flowered Dahlia which attracted notice at the last New York Dahlia Show



F. Earl James (Stillman) is a good representative of the Hybrid Cactus Dahlia. It is of a curiously mottled pink color



The Millionaire (Stillman). Decorative, mauve pink, large

Fantastique, Orchid-flowered (Tyler). Represents a highly attractive type from the Pacific slope. Shaded crimson with white tips to the rays

Mrs. A. K. White (Bassett). A good white decorative

Loma Family of Peony-flowered Dahlias is a group of twenty new seedlings in as complete a set of colors and shapes as has ever been evolved within a period of two years. No two are alike.

James Franklin Graham is of orange-red color suffused with old rose, with a golden sheen. Reverse of petals is mauve (Tyler).

Mrs. Bowen Tufts. Deep rosy red (Alexander).

PEONY DAHLIAS

Kakadee. Lemon-yellow, white tips. *Titian*. Rose-cerise; of large size. *Norah Lindsay*. Dove color, suffused pink, mauve reverse. *Van Dyck*. Old rose, with curiously turned and twisted petals (Tate).

Other new Peony-flowered Dahlias that won the Gold Medal at the Panama-Pacific International Exposition are:

Carnival Queen. Cherry, tinted and shaded amber. *Empress*. Salmon-scarlet. *His Majesty*. Clear salmon, tinted amber, shading to clear yellow at the base of the petals showing a large golden disk. *Loyalty*. Soft rose with heavy carmine markings and shadings. *Modesty*. Salmon, tinted amber, shading to clear yellow at the base, with golden disk. *Melba*. Blood-red. *Ophir d'Or*. Old gold



Cherry Malotte semi single Cactus or "Orchid" type (Tyler). Brick red with yellow base and pale reverse

fading to a rich tan. *Sunshine*. Bright sulphur-yellow. *Sunburst*. Golden yellow, shaded old gold. *War*. Blood-red (Wilmore).

SHOW DAHLIAS

Mary Pickford is of lemon-yellow color, shading to salmon-pink with a slight tinge of mauve (Bassett).

Dreer's Yellow. Claimed to be "The Best Yellow Show Dahlia yet sent out." Flowers average seven inches in diameter. Fully matured they assume ball shape (Dreer).

Caleb Powers. Large shell-pink. *Maud Adams*. White, shaded with pink. *Rose*. Large, deep rose (Hallauer).

King of Shows said to be as perfect a Show Dahlia as ever shown in this country. Pure deep butter-yellow. *Largest of All*, deep lilac color, unusually strong growing, of medium height, with exceptionally large leaves (Stillman).

COLLARETTES

Among the new Collarettes are *Annette*, *Billy Spear*, *The Peach*, *Color Blender*, *Grace Loraine* and *Yellow Prize* (Stillman); and *Fairy Queen*. Yellow, with white collar. *Lotus*. White, with lemon-yellow collar. *Lily*. Pure white, cupped like a water lily. *Dainty*. Soft pink, with lemon-yellow collar. *Rosette*. Yellow at base, with creamy edging and tips, centre suffused cerise, collar white (Tate).



Ruth Van Fleet one of the ten "sisters" in the Loma family (Stillman)



King of Shows (Stillman) is a newcomer in a class that is somewhat neglected to-day

Newcomers Among Gladiolus

THE march of events among Gladiolus is even more astonishing than among Dahlias. The advent of the new "ruffled" (Kunderi) and Primulinus types opened up rich fields for the experimentalist and hybridizer. While their efforts are exceptionally fruitful (Kunderd alone recording more than 1,000 new seedlings for 1917) the work of producing such quantities of each new kind as would make their marketing profitable, is necessarily slow.

As the result, while the trade abounds with new comers of rare shapes, sizes and colors, the number available in the open market is really surprisingly small. The present limitations of European importations are adding impetus to home activities so that we may look for really important events in Gladiolus during the next few years.

Among those offered through catalogues and other channels, we note:

Evelyn Kirtland. A seedling from the well known Mrs. Francis King and said to be one of the tallest in existence. Rosy pink, darker at the edges, fading to shell-pink at the centre, with scarlet blotches on lower petals (Austin Coleman).

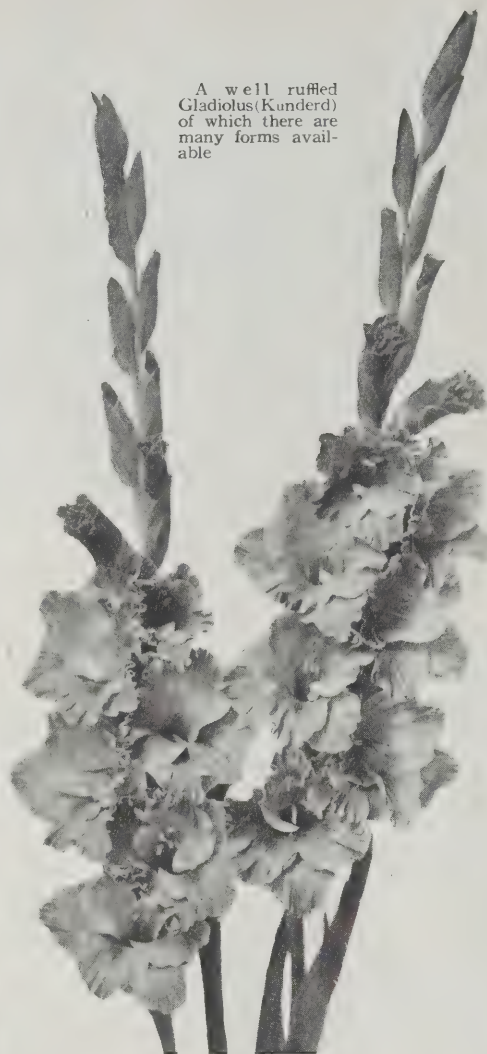
Bertrex, a white, with lilac lines in the throat (Hallauer).

Prosperity has flowers as large as those of Peace and War. Color, a bright rose, shading to madder-lake except on the lowest segment which has a chamois-yellow base. The anthers are violet, styles white (Cowee).

Badenia, said to be the best blue Gladiolus to date "is giving much better results since becoming acclimated and growers seem well pleased with spikes secured from American-grown bulbs" (Tracy).

Amethyst, a bedding variety, of deep amethyst color, slightly suffused rose (Tracy).

A well ruffled Gladiolus (Kunderd) of which there are many forms available



From left to right, War, Peace, Prosperity (Cowee). The colorings are fittingly appropriate

Margaret. Carmine with large white blotch on the lower petals, the white and carmine blending into a violet tint. Flowers are arranged in two rows, facing the same way and set without crowding (Vaughan).

Sunbeam. A golden yellow hybrid of the Primulinus type (Vaughan).

Lily White. White, with a sulphurous tint in throat which completely fades when spikes are placed in water (Kunderd).

Among the "ruffled" Gladiolus (Kunderi type) the following record further progress:

Crinkles. Pink with lavender-rose tint. Professor Bailey's choice in New Encyclopedia of American Horticulture as being the most pronounced type to date, among "ruffled" Gladiolus.

Pride of Lancaster. Orange-salmon, with deeper orange throat.

Rose Glory. Rose-pink, deeper in throat (Kunderd).

"When Doctors Differ"

WHAT are the best half dozen Dahlias for all around garden use? This question was put before the leading Dahlia specialists who were asked to name the selected six without any reference to class or color—a difficult problem we will admit, and our thanks are due in proportion to those who have given the replies.

These represent the Dahlia interest from coast to coast and are as follows: Messrs. Alexander, Burns, Chapman, Clark, Duthie, Kerr, Mastick and Willmore. Other

growers asked, failed to vote, or misunderstanding the question, pointed particularly to novelties. Our object was to get a popular vote on the most adaptable varieties. The result is interesting in so far as a few varieties did secure three votes. These are presented herewith, and the comments given are gathered from all the various remarks submitted.

Countess of Lonsdale. The favorite Cactus from every point of view. Regret it has not a more distinctive color. Flowers average four inches in diameter on good stems. Height of plant three feet. Color, salmon and apricot.

Delice. Decorative. Rose-pink, beautiful color. Good grower, free flowering, blooms average four inches, borne well above the foliage. Excellent keeper.

Geisha. Peony-flowered. One of the largest Dahlias grown. Individual form. Strange color combination—scarlet, yellow and gold. Flowers five to six inches. Plants medium height. Stems drooping. Distinctively for garden purposes. One of the most striking in cultivation. Early and continuous bloomer.

Hortulanus Fiet. Decorative. Salmon and yellow. Very free flowering. Tall grower, stems three feet long.

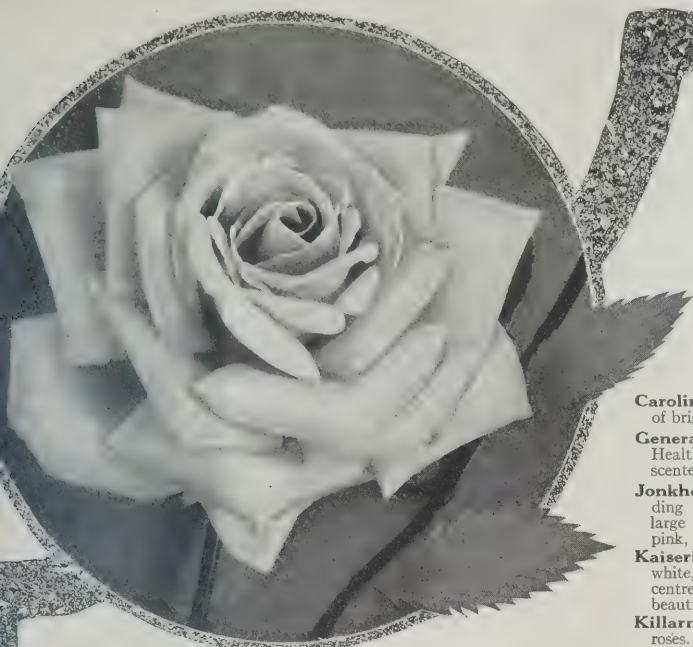
Kalif. Hybrid Cactus. Bright scarlet, immense size and held on long erect stems. Plant five feet high. Never fails, no matter what the conditions are.

Mina Burgle. Decorative. Scarlet. Nearest perfection of any I have grown. Very free flowering. Stems wiry and stiff. No tendency to droop. Good habit of plant, branching freely. Flowers medium to large. Good keeper.

This gives the six sought. No other variety was selected by more than one grower. When doctors differ, who shall decide?



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General MacArthur: Rich crimson scarlet. Healthy vigorous grower, producing its sweetly scented flowers of good form in great profusion.

Jonkheer J. L. Mock: One of the best bedding varieties. The flowers, on long stiff stems, large size and perfect form, of a deep imperial pink, the outside of the petals silvery rose white.

Kaiserin Augusta Victoria: Soft pearly white, tinted with just enough lemon in the centre to relieve the white; remarkably fragrant, beautifully formed flowers on long graceful stems.

Killarney: One of the most popular of garden roses. Sparkling brilliant pink, buds long and pointed, the petals very large and of great substance, and just as handsome in the full blown flower as in the bud form.

Lady Ashtown: Produces perfect blooms under all weather conditions. The flowers are large, double with high pointed centre, and are produced on long stems; splendid for cutting; in color a soft rose, shading to yellow at the base of the petals.

Lady Alice Stanley: Absolutely perfect in form, color, size, freedom of bloom and fragrance. In color a beautiful shade of coral rose, the inside of the petals shading to flesh pink with deeper flushes.

Laurent Carle: Produces its large deliciously scented, brilliant carmine flowers throughout the season, nearly as good in hot, dry weather as under more favorable weather conditions.

Ophelia: Is admired by every one, its flowers are held erect on long stiff stems, are of perfect form, large size; and of a most pleasing delicate shade of salmon-flesh, shaded with rose.

Mrs. Aaron Ward: The flowers which are of splendid form, full double, are equally attractive when full blown as in bud; in color a distinct Indian-yellow, shading lighter toward the edges.

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Mme. Leon Pain: Entirely distinct in color, a silvery salmon, with deeper orange-yellow, shaded centre, the reverse of the petals being a salmon-pink; flowers large, full and well formed, very free flowering.

Mme. Ravary: Color, a rich deep nankeen-yellow, becoming lighter as the flower expands. The flowers are of splendid form, full double and very fragrant.

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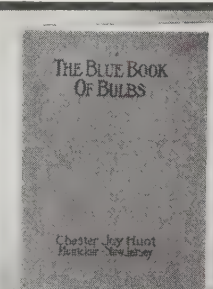
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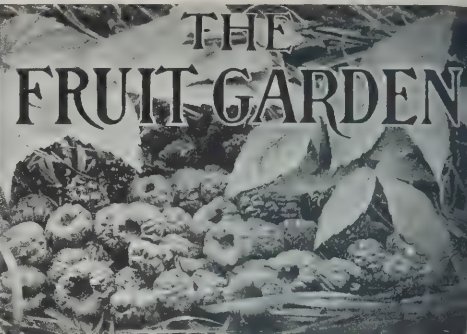
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Crown Grafting; An Easy Way to Make Over Old Trees

DID you ever graft a fruit tree? It is wonderful when you come to think of it; that the tiny cutting inserted into a foreign stalk, should grow and expand and assert its own individuality above that of the root that feeds it. Our most popular form of grafting is the cleft; that where the stock is split and the cutting or cions inserted into either side of the stock. And this often gives good results, but did you ever try the crown graft?

My experience with cleft grafting was not as satisfactory as one is led to expect from the description of it. Out of a possible dozen attempts, only one lived. It is true that the stalk-wood was of considerable size (two or three inches), but had this been of rapid growth, it might have been successful. As it was, the growth was comparatively old on half-starved trees and the grain of the wood considerably twisted.

When the next season came around, we decided to know *why* and it was soon evident from a few experiments that the twist of the slow growing stock was responsible for the fact that the cions did not engage the bark properly. So right here we stopped and consulted the little book. This stated that it was a popular form abroad for large stalks, but the native experts had never heard of it. As described by the Government pamphlet, it consisted in cutting the cions evenly wedge-shape (a long cut) and inserting them between the bark and the wood of the stock. Right here you will note that the two bark surfaces of the cion engage the bark of the stock their whole length, wherein the cleft cion is generally inclined slightly outward so as not to miss a jointure and thus reduces the area of the meeting.

When we carried out the directions literally, we found that the pressure necessary to force the cion into place was sure to strip the bark from its rather slender wedge. So we tried inserting a pen-knife between the bark and wood of the stalk, being careful not to injure the bark. This proved successful and easy. There was no binding to be done. The bark did the binding and wax was banked about the cion at the point of its insertion. The tips of cions also were waxed. On the smaller stalks we used from three to four cions and on the larger from five to eight. Of course the cut made in the stock was pitched to shed water.

Our luck with the crown graft was very satisfactory; out of all that we put into eight trees—from one to three in each, not one was lost. Some that did not respond at all at first were given up as hopeless, but even these came on later and showed up well. The reason for this irregularity lay in the vigor of the stock, the stronger coming first.

(Continued on page 246)



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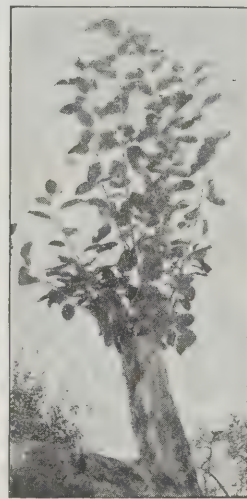
(Concluded from page 244)

Our orchard was an old one much ill-treated and neglected and considerably infected with canker and blight. Thus severe cutting back was necessary and in many cases even to the main stump itself. In this the crown graft was the saving grace.

All the cions were left to be thinned out in the spring. Some even may be sufficiently developed to be used as cions for the coming year.

We had one tree that was simply starved, one half was grafted last spring, while the balance is to be done this season. But it seems as if this might have been done all at once, leaving a few water sprouts to keep the spark of life going.

A word as to cions: Those which were cut the fall before and kept over winter, did not do as well as they might, having a tendency to dry;



The old apple tree that was crown grafted and saved for better things

those cut in the spring did better. Those were cut just before the buds started to swell and were laid away and inserted when the leaves on the stock were about the size of a mouse-ear, and even larger. Some of the cions were from clippings of the prior late fall that had laid under the snow all winter and as far as could be seen they did as well as the others. As a matter of experiment, cuttings were taken from a young tree—a seedless, coreless apple—that the mice had effectually girdled during the winter. The main thing in these tests was that the wood was dormant.

We would add a word of caution from past experience. Do not put in the cions too early. The stock should be in condition to start the growth at once.

As for the crown graft, we take off our hat to it; one takes very little chance with a Crown graft.

Conn.

E. C. H.

How to Pot A Plant

POTTING is one of the commonest garden operations and yet it is often carried out in a very careless manner. A huge number of plants come to grief owing to the fact that they have not been properly placed in the pot. Clean pots are very desirable at all times, and old ones should always be washed before use. The question of drainage is of immense importance. A quantity of broken crocks should be secured and one of these which is of a good size and rounded, must be arched over the hole. Then build up two or three layers of other crocks as shown in the photograph. Finally add a layer of moss, fibre, or similar material. This ensures the safety of drainage and prevents the settling down of the earth in between the crocks—a frequent cause of an imperfect passage of water. Now throw in a little soil so that the pot is about a third full. Take the ball of the plant to be repotted and, if needful, loosen the soil at the base. Now put the plant ex-

(Continued on page 248)



Roses

YOUR rose garden should be a joy spot of beauty and delightful fragrance all summer long!

That's just what you can make it with my sturdy-rooted American grown roses. They are unexcelled for vigorous growth, bounteous bloom and hardiness.

They will thrive practically anywhere; coming up smiling after rigorous Winters. They will give you a sure first season's bloom profusion and be a constant delight in years to come.

This is a rose stock that is bound to make friends because of its surpassing quality. My Rose Book tells the whole story of this out-of-the-ordinary rose stock, and describes the most popular varieties.

Gladioli

Joy Givers for Your Mid-Summer Garden

THE modern Gladioli is excellently adapted for either bedding or background planting. The wonderful combinations of colors that it embraces, go all the way from the magnificent and gay, to the most delicate. Its charming grace of habit is truly fascinating.

My American grown Gladioli bulbs are all plump and healthy; teeming with life. They are quality bulbs in the full sense of the word.

Send for my Rose and Gladioli Catalogue

To those unacquainted with the quality of my Gladioli bulbs (to make them acquainted) I will send a box of 25 choice, selected bulbs of named varieties, anywhere in the United States for \$1.

A.B. Vanderbeek
Roses and Bulbs

172 Broadway

Paterson, N. J.



FREE

For Your Name
and Address

THIS Spraying Guide has enabled over 400,000 farmers, experiment stations, gardeners, orchardists, florists, to prevent crop ruination by insects and blights—to better quality and quantity of yield. Sent free for your name and address.

**BROWN'S
Auto-Spray**

**Annihilates Bugs
and Blights that
Ruin Crops
and Kill Trees**

Brown's Auto-Spray made in 40 hand and power styles. Style No. 1 is popular for general use. Right size for 5 acres berry plants, or one acre trees. Easily carried over your shoulder. Also investigate Brown's Non-Clog Atomic Nozzle. Cannot clog. Cleans itself automatically. Write for FREE Guide To-day.

E. C. BROWN CO., 850 Maple St., Rochester, N. Y.



30 Named Gladiolus Bulbs \$1.00

- 10 **America**, soft flesh-pink.
- 10 **Mrs. Frances King**, light crimson-scarlet
- 10 **Augusta**, white with purple throat or
- 75 **Mixed Gladiolus Bulbs \$1.00**

American Hybrids in a splendid variety of colors and shades.

Postpaid in U. S. A. east of the Mississippi River. Points west 25 cents extra.

Spring Garden Guide

Containing cultural directions for securing a succession of bloom sent with each order. This guide also illustrates and describes the best in flowers and vegetables, and gives many helpful suggestions for successful planting.

Arthur T. Boddington Co.

Seedsmen Dept. G-8

128 Chambers Street NEW YORK

Fraser's Evergreens Will Grow Anywhere

These evergreens are grown up here in New York state, where they must be hardy to survive. They are used to cold winters and hot summers and will grow anywhere from Canada to Florida. Send your order early and plant in May.

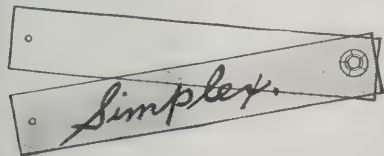
American Arborvitae. The best for hedges 2 to 3 feet	Each	100
	\$1.50	\$60
Norway Spruce. Good for windbreaks, 1½ feet.....	Dozen	100
	\$3.50	\$30

Time is short—not much left. Order your fruit trees and ornamentals now.

Fraser's Tree Book will help you select both fruit and ornamental trees. Send for a copy.

SAMUEL FRASER NURSERY, Inc.
173 Main Street Geneseo, New York

Simplex Weatherproof Plant Labels



Permanent. Easy to Use. Always legible. For all outdoor marking. Use on roses, shrubs, trees, and seed rows and you will not forget the names. The writing may be erased when desired.

PRICES, Postpaid, Including Copper Wires

- No. 1, size 3 x ½ inches, 25 cents doz. \$2.00 per 100
- No. 2, size 4 x ½ inches, 50 cents doz. \$4.00 per 100

At your dealers or from

STEWART & CO., 171 Broadway, New York

Get More Flowers this Season

The more light, air, and moisture your vines have the better they will grow and produce blossoms and leaves. They get all they need if they have an



TRELLIS

on which to climb and spread their glory to the elements. They are made of extra heavy, strong steel wires, held at every intersection by the Excelsior steel clamp, which is a patented feature. This gives them rigidity and strength to withstand heavy winds and sudden shocks.

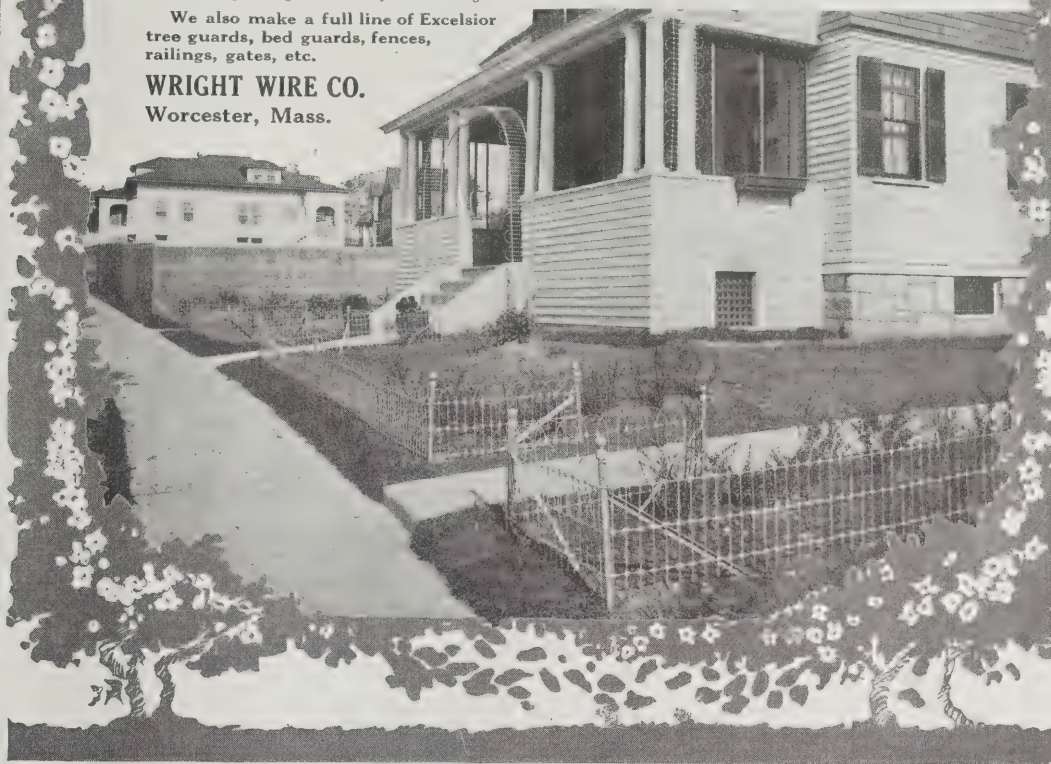
Dip-galvanized AFTER making. This completely solders the whole trellis into one rigid fabric at the same time making it completely rust proof.

The arch at the entrance, porch-end trellis and fence shown here are all made in the same manner and of the same materials. They are truly economical necessities for the home grounds.

Interesting catalogue B mailed for the asking

We also make a full line of Excelsior tree guards, bed guards, fences, railings, gates, etc.

WRIGHT WIRE CO.
Worcester, Mass.



A LAWN EXPERT

will answer your lawn questions and advise how to get the best lawns through the Readers' Service.

The Readers' Service gives Building Information

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If Not

Consult

FARQUHAR

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Boston, Mass.



Full 18 inch width

Middle tooth out, working two rows at once

Adjusted for narrow rows

It's Fun to Garden

Fun for the thousands who garden the Pull-Easy way. You can put new life into your garden—keep it healthy and make it grow—do the work quicker, better and easier with a

PULL-EASY

Adjustable Garden Cultivator

Instantly adjusted to any width from 7 to 18 inches. Can be used as a rake if desired. Middle tooth quickly removed for working two rows at once.

For sale by most dealers. If your dealer hasn't it, write your name and your dealer's name on the margin of this ad, mail to us with \$1.25 (\$1.35 west of the Rockies and in Canada) and you will promptly receive your Pull-Easy by Parcel Post, prepaid.

Literature on request.

The Pull-Easy Manufacturing Co.
203 Barstow Street Waukesha, Wisconsin

This Vine Will Grow Anywhere

Euonymus radicans vegeta has been pronounced the best American climber. It grows anywhere, climbs to considerable height, the dark green foliage is beautiful all the year. Red berries borne freely in fall and winter. This climber can be used on walls, verandas, fence or pergola.

No. 1 plants, 50 cts. each
No. 2 plants, 75 cts. each
Extra large plants \$1.50 each

Send money with order—plants will be shipped promptly. Ask for a copy of my catalogue of Japanese Irises, Peonies, Shrubs and Evergreens.

Adolf Müller DE KALB NURSERIES
Norristown, Penna.

(Concluded from page 246)

actly in the centre and pour soil in all round the sides. A potting stick is very handy at this time as it is easy to ram the mould down firmly. This is really an important matter seeing that air pockets in the soil may be the cause of trouble. The roots of the plant on entering these holes shrivel up and die. Fill in the soil to within about half an inch of the top of the pot, and the business is then com-



Use a clean pot and put in broken crocks covered with coarse litter to prevent blocking the drainage

plete. A glance at the accompanying photograph will give a good idea of the way in which a plant should stand in the pot.

After repotting it is a mistake to soak the soil with water at once. If it is suitably moist, as the mould always should be at potting time, it is just as well to give no water at all for twenty-four hours. It is important that the newly potted plants should be in a cool shady place for the first few days, otherwise they will flag seriously.

Never water a plant in a pot unless it needs it. Roots breathe just like other parts of the



A properly set plant (left) and one badly potted. Note how the roots are placed in the soil in each case

plant and, where the soil is waterlogged, there will be very little air. Thus it really does pot plants good to be allowed to become quite dry now and again, always providing they do not droop seriously. A reliable method of finding out whether a plant needs water is the tapping of the pot with the knuckles. If the soil is very dry a sharp ringing sound is the outcome; on the other hand where the earth is damp the outcome is a dull thud.

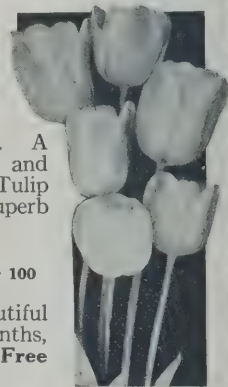
Bournemouth, Eng. S. LEONARD BASTIN.

The Readers' Service will give you suggestions for planting

The Giant Tulip

Prince of the Netherlands Darwin Tulip

Magnificent deep cerise rose, margined pink, with pale blue centre. Beautifully formed flower of unusual size. A Giant. Vigorous stem and foliage. A wonderful Tulip for tall bedding and a superb forcer.



Price:

\$1.50 per doz.; \$12.00 per 100

Many unusually beautiful Tulips, Narcissi, Hyacinths, etc., are listed in our Free Import Catalogue.

You can secure quality stock very reasonably if you order before July 1st. Send postal for Catalogue now.

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Hardy Ferns and Flowers For Dark, Shady Places



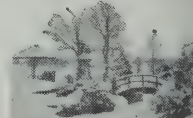
Plant your native ferns, plants and bulbs NOW. It is not too late to get good results if you do your planting immediately.

Send for descriptive catalogue of over 80 pages. It's FREE.

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Most of the U. S. and Canada is perfectly suited for delightfully artistic tea gardens and rockeries. Surprisingly quick results at moderate cost. This has been my specialty for thirty years.



T. R. OTSUKA, 300 South Michigan Blvd., Chicago



Rustic Garden Furniture

is highly ornamental and fits well in any garden scheme. Made in substantial fashion from best Red Cedar available, it outlasts most other kinds. Pergolas, garden seats, chairs, summer houses, rustic bridges, etc., of standard designs or made according to your own ideas. I also make bird houses, fern hanging baskets, and many other rustic garden ornaments. Write for freely illustrated catalogue. Goods shipped anywhere.

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"PENNSYLVANIA"
Quality Lawn Mowers is
proof of perfect mechanism,
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Self-sharpening blades insure per-
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trouble and expense of regrinding.

Every blade is a cutting knife, made
of crucible tool steel, oil-hardened and
water-tempered, and cuts like a pair of
fine shears.



This is the hall mark of
Lawn Mower Quality and
appears on the handle of
all "PENNSYLVANIA"
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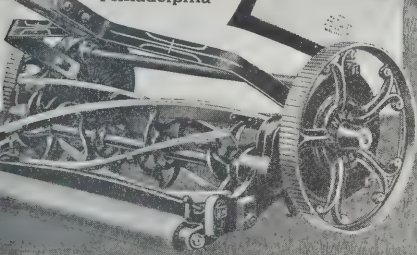
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Quality Mowers
are not only
the cheapest in
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the most satisfac-
tory in operation.

Your hardware
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will show you the
various sizes and
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ent Free "How to care for
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TO give an adequate uninterru-
pted water-supply with the
least "fuss and bother" is the aim
of

DEMING
Hydro-Pneumatic Systems

As a result of 35 years of specialization
on pump designing and construction,
Deming Systems are as simple, sure and
permanent as long experience, expert
workmanship and carefully chosen
materials can combine to make
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An attractive snug-up porch planting of Rhododendrons. Note
the charming link-up it makes between house and grounds

Plant Bay State Rhododendrons For Sure Results

THE lovely multi-colored hybrid
varieties which are so desirable, are
mostly grown abroad.

In buying from us you can have your
choice between the new ones imported
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have spent a year or more in our nursery,
becoming thoroughly acclimated.

When we say "thor-
oughly acclimated" we
mean exactly what we
say. For our severe
New England climate
ruthlessly shows up
every weakling. We
stand the loss of the
weaklings—not you.
The stock that survives
and comes to you *must*
have the backbone to
transplant satisfactori-
ly and thrive lustily.



The roots are not chopped off in digging. You get
them *all*. Every root ball is burlapped separately
when shipped.

The absolute dependability which
you can place in Bay State Rhododen-
drons, you can place in *all* Bay State
stock.

No matter whether it's shade trees,
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—the stock that stands the critical
test of our long hard Winters, *must*
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Where planting *cer-
tainities* are the desider-
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Making your selec-
tions will be an easy
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Dahlias

The Brockton Dahlia Farm is again
to the front with the largest and best
collection of Dahlias in the United
States. All new roots, tagged, and
true to name. It will pay you to give
me a trial order—try me and see.
Catalogue free.

W. P. LOTHROP
East Bridgewater Massachusetts



Marsh-made wood
trellises set off
to advantage the
beauty of your
flowers and vines.

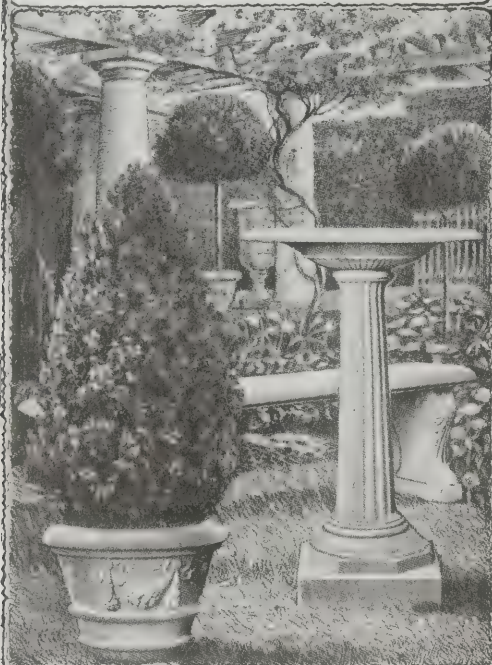
MARSH
(wood)
TRELLISES
Stand years of exposure

Made of best Michigan White Pine,
painted green. Free from knots or blem-
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garden. Send for catalogue. Then see
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DOUBLES the GARDEN'S CHARM



Classic Simplicity is typical of the many beautiful designs in our Collection

Galloway Pottery is everlasting Terra Cotta, made in a variety of forms including Bird Fonts, Sundials, Flower Pots and Boxes, Vases, Benches, Gazing Globes and other interesting pieces that recall the charm of Old World Gardens.

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Hill's Evergreens Beautify Homes



Our sure growing evergreens lend a finished touch to any home. For 56 years we have been furnishing choice, hardy evergreens to people all over America. We offer you the choice of the greatest evergreen stock in the world—over 50,000,000 evergreens on hand.

We give expert advice free—furnish suggestions on tree arrangement. Write for Handsomely Illustrated Evergreen Book—trees shown in true-to-life colors—Free! Get the book. Don't risk failure with evergreens of uncertain quality. Get the book and get posted.

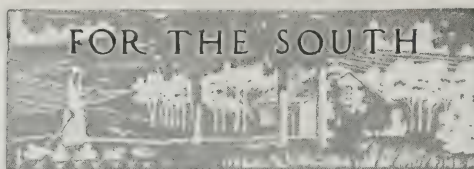
D. HILL NURSERY CO.

Evergreen Specialists

BOX 1066

DUNDEE, ILL.

FOR THE SOUTH



Insurance by Protection

WHAT with gathering the first spring crops, and planting the second crops, spraying, weeding, and transplanting, May is a month full of activity for the gardener.

Keep up spraying during May and June. Grapes are subject to brown rot, so, as soon as the blooms appear, spray with bordeaux, summer strength. Peaches and plums have brown rot and also are attacked by the curculio; the apple tree pest is the codling moth. For spraying these fruit trees, 1½ pounds of arsenate of lead should be added to 50 gallons of bordeaux to destroy the insects.

Summer pruning is necessary for all fruit trees and grape vines. When the limbs overlap and the branches are too close, cut out so as to let in more light and air. If blight appears, trim away the affected leaves or branches and burn immediately. Thin out superfluous fruit; five inches apart is close enough for fruit and bunches of grapes that are small or imperfect should be cut out. Too much fruit saps the vitality of the tree and the weight breaks the limbs.

Spray potato and tomato plants in their early stages using bordeaux with arsenate of lead. Sulphocide is spoken of as an excellent spray for tomatoes. Vegetable plants need constant spraying throughout the growing season—every two weeks is not too often. Grape vines need bi-weekly spraying until the grapes attain considerable size, say until the middle of July. Trim off the ends of the grapevines and let in some light. Brown rot and mildew come from too much shade in a damp season. More perfect bunches could be obtained by bagging the grapes.

Watch out for the currant worm. Hellebore has been found efficacious, also a sprinkling of lime or coal ashes about the roots.

In setting out cabbage and tomato plants, put a collar of paper about the stem, letting it extend an inch below and an inch above the ground to protect them from cutworms.

The early tomatoes can be set out in the open ground by the end of April if provision is made to cover them at nights in case of frost. Have large earthen pots, or burlap bags, or newspapers held in place by strong sticks, at the side of each plant in readiness to cover them every night.

Peppers and eggplants, if transplanted to pots and sunk in the cold frame, need not be planted in the open until later. The cucumbers, squashes and canteloupes which were started early in the hot beds, as suggested in the February number of GARDEN MAGAZINE, could now be placed in the holes prepared for them in the open ground, five feet apart, and the individual 10 x 12 frames turned over them to protect from frost and insects and hasten them to fruition.

The latter part of May, fall cabbage, celery, brussels sprouts, cauliflower, whitloof chicory, main crop and late tomatoes may be sowed in the cold frames. After the first garden peas are used, turn under the vines and plant late corn, such as Country Gentleman or Stowell's

(Continued on page 252)



Earliness Counts Most!

The vegetables you gather before middle of June are worth the most! They will be of greater value this year than ever before because of current high prices. Make sure of early vegetables by enlisting the help of

"Gro-Quik" Forcers

Insure earlier and larger crops of better vegetables. Working on the principle of miniature greenhouses, they keep out late frosts in the spring, early frosts in the fall. They hasten maturity, preserve moisture, keep vegetables clean. Quickly put together, easily handled and moved. Patented wires and any size glass do the work. "Gro-Quik" Forcers earn their cost many times in one season.

Sizes, Shapes, and Prices for Every Purse and Purpose

Tent-shaped forcers, as shown above, are useful in forcing lettuce, onions, tomatoes, etc. \$6.81 will buy enough glass and wires of size A to cover a row 31½ feet long. Wires alone \$1.25 per dozen. Sample wire of tent-shaped forcer mailed on receipt of 15c. Write for complete details of this wonderful invention.

Send for Free Booklet describing Forcers and many other garden helps.

THE CLOCHE CO., 131 Hudson St., N.Y.



Trade

Mark

A Powerful Fungicide for Fruits, Vegetables and Flowers

Peach Leaf Curl, Brown Rot, Apple Scab, Grape Mildew, Potato Blight, Cucumber Wilt, Bean Blight, Rose Mildew, etc.

Most inexpensive. 1 gal. makes 200 gals. spray. \$1 to \$2 per gal. according to size package.

Booklet free.

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The BARKER Weeder, Mulcher and Cultivator

SEE THE KNIVES

3 tools in 1, cuts the weeds under ground and works the surface crust into a moisture-retaining mulch—intensive cultivation. Only garden tool that successfully, in one operation, destroys the weed and forms the necessary soil mulch. "Best Weed Killer Ever Used." Has shovel for deeper cultivation. Self adjusting easily operated, inexpensive. Write for free illustrated catalogue and special Factory-to-User offer.

BARKER MFG. CO., Dept. 11

David City, Neb.



BARTON'S LAWN TRIMMER

TAKES THE PLACE OF SICKLE AND SHEARS—NO STOOPING DOWN SAVES 90% OF TEDIOUS LABOR

Cuts where lawn mower will not, up in corners, along stone-walls, fences, shrubbery, tomb-stones, etc.

It is simple in construction and made to endure. Makes a cut 7 inches wide.

Price only \$3.75 each. Send Money Order to

E. BARTON, Ivyland, Pa.



Deutzias and Lilacs

are among the most satisfactory shrubs for the home grounds. Lilacs form ideal screens and backgrounds. For base or frontal planting, Deutzias are ideal. In our 800 acre nurseries, we grow all well-known sorts of merit in large enough quantities to make their liberal use inexpensive.

Kinds Worth Planting

Among Deutzias, we offer

D. Gracilis, shown above
D. Crenata, pink
D. Lemoinei, white
D. Candidissima, white
D. Pride of Rochester, rose

Strong plants, 50c each;
all 5 for \$2.

Lilacs we recommend

Marie Le Gray, white
Charles X, reddish purple
Rubra de Marty, blue
Wm. Robinson, double pink
Michael Buchner, "Hilac"

Strong own-root plants,
60c each; all 5 for \$2.50

Order Now for fall delivery. All will bloom next spring

Let our Catalogue help

It answers many questions about plants, shrubs and trees; tells how to plant and use them to best advantage.

Write to-day

American Nursery Co. ^{Singer Bldg.} New York

Perfect Lawns

And How to Make Them is told in detail in an interesting 16 page booklet recording a quarter century's experience in lawn making. A free copy is awaiting your request. Please ask to-day.

Grass Seeds for All Needs

In any quantity of *Best Quality Only* are my specialty. Put your lawn problems up to me. Correspondence invited from Golf Clubs, Park and Estate Superintendents. "Everything for the Links" my specialty.

William Tucker ^{Lawn Specialist}
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ROSES & NEW CASTLE

—the most authoritative book on rose planting, cultivation and pruning ever published. Beautifully printed in colors, this valuable guide gives special prices and tells all about our famous Roses, Plants and Bulbs. It's the lifetime experience of America's largest rose growers. You will be astonished at our low prices. Tells how we prepay express charges anywhere in the U. S. and guarantee safe delivery. Write to the Rose Specialists for your copy to-day.

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NATURAL HUMUS

6 Bags for \$5.00

Any garden needs something to stimulate the soil; something to bring back its producing qualities.

NATURAL HUMUS the producer of better plants and better crops WILL DO THIS. Order 6 Bags to-day.

NATURAL HUMUS CO. 526 W. 179th St., N. Y.

BUY BULL DOG GARDEN HOSE

this year. It costs 18 cents a foot, and is worth every cent of it. Hose seldom wears out—it usually dies and falls to pieces. Cheap hose cannot last because it is made of worthless compounds.

Bull Dog 7-ply hose lasts longest because there is plenty of live rubber in it. Letters come to us frequently, telling of lengths in service 14 or 15 years.

Your dealer has it at 18 cents a foot in 25 or 50 foot lengths, made 5-8 in., with 3-4 in. connections. If he is out of stock, we will fill your order direct.

A 2-cent Stamp will bring you our practical booklet, "Making The Garden Grow." You'll like it.

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Irises, Hardy Plants, Lilies and Japanese Garden Specialties

Send for our new 1917-18 Catalogue
Over 500 fine varieties of Irises

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Largest importers and growers of
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Send twenty-five cents for catalogue. This amount will be refunded on your first order.

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Offers a unique service to western garden enthusiasts. Centrally located for the economical distribution of the most complete stock of ornamentals west of the Mississippi. Shade trees, evergreens, flowering shrubs and vines, Hollyhocks, Peonies, Iris, Phlox. *Specializes Colorado native shrubs and flowers, including alpine and rock plants.* Illustrated catalogue free, if you address D. M. ANDREWS, Owner, Boulder, Colorado.

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Step into the store where you see this sign in the window and ask for their free book on lawns. You will find they have lawn mowers, hose, grass seed, tools and everything you need for lawn or garden. Ask them to show you the

DUNHAM WATER WEIGHT ROLLER

TRADE MARK

By simply pouring water in the steel drum, the weight can be regulated to suit any condition—soft lawn, firm turf or tennis court. It can be quickly emptied for storing away.

Rolling is not hard work with this tool. The axle turns smoothly in steel roller bearings. The handle is held upright when not in use by a NoTip Handle Lock and the scraper cleans all leaves and dirt from the drum.

Your lawn needs rolling NOW

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(Suburb of Cleveland)
Warehouse: 270 West St., New York City

If your dealer hasn't the book, write us direct



Fill with water to any desired weight

FREE BOOK

on Lawns
32 Pages
Illustrated

BEFORE ROLLING

Frost heaves the sod and roots die out.

AFTER ROLLING

Rolling packs moist soil back about the roots.

WEEDS! WEEDS! WEEDS!

(And why you have no cause to fear them)



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A transparent waterproof fabric, guaranteed to generate about the same warmth and light as glazed sash, or money back. For all forcing purposes. Sample 3x6 feet. 50c. prepaid.

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BIRD BATHS

Rarely attractive in design, Sharonware Bird Baths are constructed to insure the safety of the birds when bathing. As the bowl slopes very gradually toward the centre, varying the depth of water from $\frac{1}{8}$ to several inches, they quickly and easily regain a footing. Because of this fact, Sharonware Bird Baths are endorsed by all the Audubon Societies.

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Gordon-Van Tine Co. 6297 Case Street
Satisfaction Guaranteed or Money Back Davenport, Iowa

(Concluded from page 250)

White Evergreen or Howling Mob, in the same place.

Strawberries should be kept clear of weeds and the fruit protected by pine tags being placed beneath the bunches, as the ripening season is about the tenth of May.

Asparagus cutting begins about the first of April and is kept up for two months, after which the plants are allowed to grow. Asparagus should be cut early in the morning and kept in water until used. It dries out very quickly and gets tough. Asparagus and other vegetables should be canned the same day as gathered.

Keep up a succession of planting of green peas, lettuce and beets and snap beans until June 1st, stop off and begin again the end of August. Plant corn, lima beans, squash, cucumbers and melons when the apple trees are in blossom. Keep up bi-weekly planting of corn, beginning with the early varieties, such as Golden Bantam and Adam's Early and later Country Gentleman, Stowell's Evergreen and Howling Mob and Egyptian. The early varieties are usually dwarf and can be planted as close as one foot apart in the rows, which are two feet apart. Later varieties are planted as far as eighteen inches or two feet apart.

The climbing Roses are sometimes subject to mildew. A precaution is a bi-weekly spraying of bordeaux from the first of March until they bloom. Flowers of sulphur can also be used if the bordeaux was not begun early. Give bush Roses the same treatment, but a bordeaux whitens the leaves, Lasher's spray could be used (see GARDEN MAGAZINE, May 1915, page 224). It has been found efficacious against the Rose chafer.

All early flowering shrubs should be pruned immediately after blooming. A constant stirring of the soil prevents baking, especially after a rain and thus the moisture is conserved. A dust mulch is very necessary in a dry climate and cultivation should take place after each rain.

Chrysanthemums can be separated and transplanted now if it was not done earlier. Put a few roots aside in pots in a protected place and pinch off side shoots and buds to make specimen plants. Tobacco dust or coal ashes sifted on the Chrysanthemums and Peonies and about the roots will rid them of the black aphid. If Aster seeds are sown the latter part of May and transplanted into the open ground by July, they will more likely escape the black beetle, but it has been found that pepper plants planted beside the Aster attract the beetles and save the Asters.

Dahlias planted in good loose garden soil, not too rich, and cultivated often will do better than if planted with too much fertilizer for they are apt to run to leaf. Keep the soil stirred around the base, trim off all weak shoots and mix with the soil a little bonemeal.

Gladioli are planted in succession from early spring bi-weekly until July 1st, making thus a constant show of bloom all summer.

Virginia.

J. M. PATTERSON.

Watermelon Stem End Rot

WATERMELON stem rot results in decay of the melon, at the stem end. Cut and burn all weeds around the field during the winter. Spray with Bordeaux mixture. Most important of all, apply paste made of common starch with six per cent. bluestone to the freshly cut stems of the melons are being packed.



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THE Fuller & Johnson Motor Lawn Mower is designed for the large lawn with numerous flower beds, shrubs and trees, where great flexibility as well as large cutting capacity is required. This wonderful mower is large enough to cut five acres a day yet light enough not to mar the turf, and so extremely flexible that it will cut close up to and around trees, under shrubbery and along walks and driveways thus entirely eliminating the necessity for cleaning up afterwards with a hand mower. The

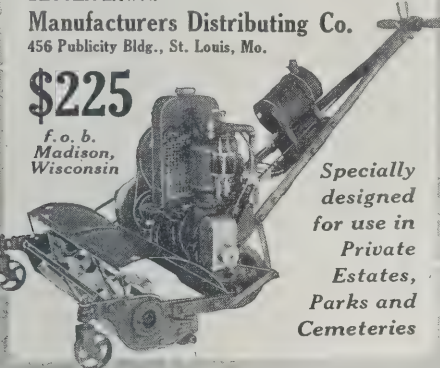
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is backed up by 70 years' reputation of the Fuller & Johnson Mfg. Co. for the highest manufacturing integrity. It is scientifically designed and built as a complete unit. Indeed its balance and the details of the mechanical features of the mower have received as close consideration as has the motor itself. If it were possible to dismember this wonderful Motor Lawn Mower before you, you would marvel at the extraordinary thought and study given to the planning of its smallest feature—the infinite care used in the finishing and adjusting of its smallest part—yet its greatest characteristic is simplicity. Write us now for full information and a copy of 'A BETTER LAWN.'

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Aurora, White and Pink
Aurora, Pure White
Aurora, Brilliant Carmine
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Moons' helped me. First, by sending their catalogue. It suggested just the right species based on the rough plan I made. And such fine, healthy specimens of evergreens; not expensive, either, especially when you consider their size and growth.

But, my secret. I was made a flattering offer to sell. I find the house isn't worth any more, but the grounds are. So, really, my pleasure has been making me money. Moons' have helped me. If I were you, I'd write Moons' for Catalogue No. A-3. They have a Hardy Tree or Plant for every place and purpose.

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- 40 AMERICA, the best light pink.
- 30 MRS. FRANCES KING, flame scarlet, very striking.
- 10 BARON HULOT, beautiful violet blue.
- 10 GLORY OF HOLLAND, very fine large white.
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100 Bulbs, Postpaid . \$2.00

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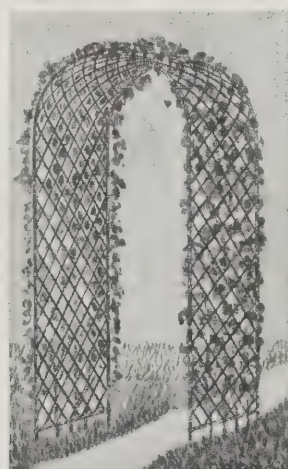
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Catalog describes colors according to the color chart of the French Chrysanthemum Society. You can make harmonious color combinations. Thousands to select from, grown here several years and have large root systems. You can plant now and have a beautiful show June first. Beautiful foliage.

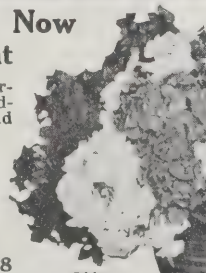
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Grown in Pots and Now Ready to Transplant

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The push-ahead-a-step-at-a-time kind are the ones you want—with high wheels to run easy over rough ground, even with a woman behind the tool, and with adjustments so that a boy or girl can handle it. Tools of this kind will do as much in one hour as you could with old fashioned hoes in ten hours. Easy work and better results.

IRON AGE Wheel Hoes and Seed Drills

Include 38 or more styles and combinations from which any gardener can choose just what he needs. Accurate sowing in rows or hills, perfectly safe cultivation astride young plants or between rows, hoeing, weeding, ridgeing, opening furrows and covering them. 16 inch wheels. Steel tube frame.

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Dingee roses are always grown on their own roots—and are absolutely the best for the amateur planter. Send to-day for our

"New Guide to Rose Culture" for 1917—it's free. It isn't a catalog—it's a practical work on rose growing. Profusely illustrated. Describes over 1000 varieties of roses and other flowers, and tells how to grow them. Safe delivery guaranteed. Established 1860. 70 greenhouses. THE DINGEE & CONARD CO., Box 537, West Grove, Pa.

EVERGREEN AZALEAS

and other beautiful
Flowering Evergreens

THIS is the heading of just one of the departments in our splendidly illustrated catalog—"Suggestions for Effective Planting."

Just now this department is of particular interest, because all of the plants described are conspicuous for their fairy flowers in the spring. They are immediately appropriate for arrangement on the borders of higher evergreen plantings—about the base of the house or in the garden, etc.

We will gladly mail you this unusual catalog on request. Meanwhile, here is one of your particular favorites:

JAPANESE EVERGREEN AZALEA

(Azalea amoena)

	Each	10	100
1½ ft.	\$1.50	\$13.50	\$125.00
2 ft.	2.00	18.50	165.00
2½ ft.	3.50	33.50	300.00
2½ x 2½, very broad . .	7.50		

Andorra Nurseries

William Warner Harper, Proprietor
Box 100, Chestnut Hill, Phila., Pa.

The Indigoferas for Late Flower

ALTHOUGH the majority of the Indigoferas are found in tropical climates it is fortunate that we have a few capable of standing the varying climatic conditions of this part of New England. Most of the species inhabit the tropical regions of Africa while a few are found in America and also Asia. We read that for more than two thousand years the value of indigo as a dye derived from one of the species, presumably *I. tinctoria*, had been recognized in Asia but its use for many years was forbidden in Europe and a decree of the Diet in Germany, held in 1577, forbade the use of "the Devil's dye" as it was called, and it was likewise forbidden in France from 1596 to 1669.

It was not till after the discovery of America that Indigo was obtained in any very large quantities in Europe, and the plant from which it was prepared was found growing wild in most of the tropical parts of the western hemisphere; this plant was probably *I. Anil* and was formerly cultivated in great abundance in Jamaica. This Indigofera was found growing spontaneously in Carolina in the year 1747, and so abundantly that 200,000 pounds were shipped to England and sold at a very good price, but from that time its further cultivation was not very extensively prosecuted. We learn that the Aztecs were well aware of its value as a dye. Recent introductions from Asia have brought to our gardens one or two species that do not produce beautiful dyes, but in return give us delightful shrubs and beautiful flowers.

Indigofera Kirilowii was introduced a few years ago from Korea by Mr. J. G. Jack. It forms a sub-shrub about 3 ft. tall and annually produces numerous racemes of large bright pink flowers during June and July. It spreads rapidly by means of suckers, giving us an easy method of propagation, although it produced seeds for the first time in the Arnold Arboretum during 1913.

Another taller growing shrub, introduced from Central China by Mr. E. H. Wilson, and growing to the height of more than 6 ft. is *Indigofera amblyantha*. The flowers are produced in slender axillary racemes, and are very numerous and pink in color. Its great value lies in the fact that these racemes continue to lengthen individually and produce a succession of flowers from July to October. What hardy shrub gives us such a continuance of flowers as that? A few of the flowers produce seeds that are contained in a long and narrow pod. It propagates fairly easily from cuttings which by the end of a year make large plants, as it is a rapid grower in its early stages. This is a plant that should find a place in every garden.

Another low growing species and more of a hardy herbaceous character is *Indigofera decora* var. *alba*, a very useful plant for the rockery or shrubbery border. The branches are slender and annually killed to the ground, but they produce during the month of July numerous racemes of snow-white flowers. This plant comes from Southern China.

A similar much branched low growing shrub is *Indigofera Gerardiana*, a native of the Himalayas, and acts in the same manner as the former in regard to hardiness. The foliage is neat and pea-green in color and forms a pretty bush, but the bright pink flowers are not very freely produced. This plant was introduced from India into England in 1842, where it is usually grown against a wall and is often called *Indigofera floribunda*.

Arnold Arboretum.

W. H. JUDD.



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Their beauty of form and wealth of color appeals to every eye. In a gorgeous assortment, flowering the first season, strong clumps, the most magnificent grown IRIS, each 20 cts., per doz. \$2.25. Per 50 SET \$9.00.

Novelty Iris "Kamata"

the finest yet discovered in Japan. Great translucent BLUE Blooms RADIANT Fleur-de-Lis, each 50 cts., 3 for \$1.00.

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Prime favorites with all landscape architects

Single Herbaceous. Lotus flowering like the beautiful Lotus of Japan, in various colors. 6 beauties \$2.50.

Double Herbaceous. Full globular blooms, rich and effective for grouping. 6 various colors \$3.75.

2 NOVELTIES. Ama-no-sode. Shell rose pink. **Fuyajo.** Velvet crimson, reverse satiny white. Each \$1.00.

Tree-Paeonies. Magnificent shrubs of unusual vigor, bearing large, splendidly formed flowers, each 75 cts. Doz. \$8.00.

Have you a JAPANESE Hydrangea? These are among the showiest of flowering shrubs:

Aiga-Ku. Brilliant blue. **Beni-Gaku.** Vivid deep rose. **Hortensia Involucrata, Double.** Blush white. Each 65 cts., 3 for \$1.75.

Novelty Hortensia Rosea. Flowers in large clusters of coral rose bloom, each 75 cts.

Japan Maples. Adapted for groups or lawn specimens.

Acer Atropurpureum with coppery red foliage.

Acer Dissectum with cut leaves of fern like appearance. 2 to 3 ft., each \$1.00. Extra large, \$2.00 to \$3.00.

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Because they represent a wonderful variety. Because they increase in size and beauty each succeeding year and with proper selection you can have a handsome garden with an everchanging color from May to December. Here are the names, both botanical and common, of a few kinds you should plant this spring:

Anemones	— Windflower
Anthemis	— Golden Marguerite
Aquilegia	— Columbine
Bellis	— English Daisy
Buddleia	— Butterfly Bush
Campanula	— Bellflower
Convallaria	— Lily of the Valley
Delphinium	— Larkspur
Dicentra	— Bleeding Heart
Digitalis	— Foxglove
Monarda	— Bergamot
Myositis	— Forget-me-nots
Papaver	— Poppies
Primula	— Primroses
Scabiosa	— Blue Bonnet
Rudbeckia	— Coneflower
Stokesia	— Cornflower Aster
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All of these and many others all described in our new catalogue, many beautiful illustrations. Tells HOW TO GET MORE PLEASURE OUT OF YOUR GARDEN

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Old Fashioned Plants
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Box 386

Ornamental Flowering and Fruiting Shrubs

SHRUBS are usually chosen for their brilliant flowers in early summer. What about the rest of the season? It is possible to have a succession of shrubs giving a succession of flowers throughout the whole summer season, and later followed by an equally attractive display of colored fruits in autumn. Doubly effective and ornamental are the following flowering and fruiting shrubs selected from our extensive nursery list. These plants are attractive every month in the year and will add a distinctive charm to your garden.

Cornelian Cherry (Cornus Mas)		
1 ft. high	\$2.25 each	\$2.00 per 10
Japanese Cornelian Cherry (Cornus officinalis)		
3 ft. high	\$6.00 each	\$6.00 per 10
4 ft. high	1.00 each	7.50 per 10
Spice Bush (Benjoin odoriferum)		
1 1/2 ft. high	\$2.25 each	\$2.00 per 10
Fragrant Honeysuckle (Lonicera fragrantissima)		
2 ft. high	\$2.25 each	\$2.00 per 10
3 ft. high	.55 each	3.00 per 10
4 ft. high	.50 each	4.50 per 10
Black Alder (Ilex verticillata)		
1-2 ft.	\$1.15 each	\$1.25 per 10
2 ft.	.30 each	2.50 per 10
Chinese Christmas Berry (Photinia villosa)		
2 ft.	\$2.25 each	\$2.00 per 10
3 ft.	.50 each	4.00 per 10
5 ft.	1.00 each	8.50 per 10
Regel's Privet (Ligustrum Iboia Regelianum)		
1 ft.	\$1.15 each	\$1.25 per 10
2 ft.	.20 each	1.60 per 10
Japanese Dogwood (Cornus Kousa)		
2 ft.	\$1.50 each	\$3.00 per 10
3 ft.	1.00 each	7.50 per 10
4 ft.	1.50 each	10.00 per 10
Beach Plum (Prunus maritima)		
1-1 1/2 ft.	\$2.20 each	\$1.50 per 10
2-2 1/2 ft.	.30 each	2.50 per 10
Silver Thorn (Elaeagnus umbellata)		
4 ft.	\$4.50 each	\$4.00 per 10
Arrow-wood (Viburnum dentatum)		
2 ft.	\$2.25 each	\$2.00 per 10
3 ft.	.50 each	4.50 per 10
Japanese Bush Cranberry (Viburnum dilatatum)		
2 ft.	\$7.75 each	\$6.00 per 10

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Have you gardening questions? If a question fails, tell us about it and ask for help from the Readers' Service.

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Kirke System is an ingenious, scientific method for using insecticides or fertilizers while watering lawns, garden, shrubbery and foliage. Latest time, labor and money saver ever invented for garden lovers. Write for illustrated pamphlet.

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The left hand pile grown on Alphano fed sandy soil. Right hand one from same number of hills, in same soil treated with fertilizer costing three times as much as Alphano.

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The above photograph shows potatoes dug from same number of hills. The left hand one is from Alphano fed soil.

It is evident that three times the crop was produced at one-third the fertilizing cost.

Be it also borne in mind, that the soil was the loose sandy sort.

It is safe to assume that part of the increased yield was due to the moisture

holding properties of the rich organic base used liberally in the making of Alphano.

Another factor was doubtless the teeming billions of active mineral food liberating bacteria that this organic matter puts into the soil. Potash is one of the foods these bacteria are positively known to unlock from the soil and make useable to the roots.

Alphano in itself is rich in potash, phosphate, nitrogen and natural lime.

Alphano is an All-In-One fertilizer. A perfectly balanced soil ration, that is high in plant foods and low in cost. In use for 11 years. We stand back of every pound sold.

Alphano is equally good on grass, shrubbery, flowers or vegetables.

Buy it, try it and judge for yourself.

5—100 lb. bags for \$5.
 \$15. a ton in bags
 \$12. a ton in bulk by the carload
 \$10. a ton in bulk by the carload

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Containing 14 new stories, with as many new poems, the first collection to appear since "Rewards and Fairies," nearly seven years ago.

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\$5.00 Dozen—\$35.00 Hundred

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Juliet Rayon d'Or
\$5.00 dozen—\$35.00 Hundred

Also smaller quantities of other varieties; and a full line of

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The Novelty Man

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COMING EVENTS CLUB & SOCIETY NEWS

Meetings, Lectures and Exhibitions in May

(The dates refer to meetings unless otherwise specified)

1. Garden Club of Myers Park, Charlotte, N. C., Subject: Summer Gardening. Lake Geneva, Wis., Gardeners' & Foremen's Association.
2. Garden Club of Pleasantville, N. Y.
3. Short Hills, N. J., Garden Club. Daffodil Show.
4. Marshfield, Mass., Garden Club.
5. Pasadena, Cal., Horticultural Society.
6. School Garden Association of New York, New York City, N. Y.—Arbor Day and School Garden Day of New York City Schools.
7. New York Botanical Garden, New York City, N. Y.; Lecture: School and Home Gardening Courses.
8. Park Garden Club, Flushing, L. I. Lecture.
9. New Bedford, Mass., Horticultural Society.
10. Short Hills, N. J., Garden Club.
11. Lenox, Mass., Horticultural Society.
12. Horticultural Society of New York An. M't'g. Lecture. Dobbs Ferry, N. Y., Horticultural Society.
13. School Garden Association of New York, New York City, N. Y.
14. New York Botanical Garden, New York City, N. Y., Lecture: The Spring Flower Garden.
15. Horticultural Society of New York. Exhibition.
16. Park Garden Club, Flushing, L. I.
17. Rochester, N. Y., Florists' Association.
18. New Rochelle, N. Y., Garden Club.
19. New York Florists' Club, New York City.
20. Garden Club of Myers Park, Charlotte, N. C. Lake Geneva, Wis., Gardeners' & Foremen's Association.
21. Short Hills, N. J., Garden Club.
22. Rhode Island Horticultural Society, Providence, Tarrytown, N. Y., Horticultural Society.
23. School Garden Association of New York, New York City, N. Y. Annual Meeting.
24. Garden Club of Myers Park, Charlotte, N. C. Floral Festival.
25. Marshfield, Mass., Garden Club.
26. Pasadena, Cal., Horticultural Society.
27. California Dahlia Society, San Francisco, Cal.
28. New York Botanical Garden, New York City, N. Y. Lecture: Garden Soils and Their Treatment.
29. Park Garden Club, Flushing, L. I.
30. Short Hills, N. J., Garden Club.
31. Connecticut Horticultural Society, Hartford, Conn.
32. Massachusetts Horticultural Society, Boston, Mass. Iris Exhibition.
33. New York Botanical Garden, New York City, N. Y. Lecture: Modern Methods of Producing Seeds from Farm and Garden.
34. Dobbs Ferry, N. Y., Horticultural Society.
35. Park Garden Club, Flushing, L. I.
36. Short Hills, N. J., Garden Club.

The New York "International"

IT WAS a great display of both plants and flowers—highly cultivated specimens—that was on view in the Grand Central Palace, March 15th to 22nd. The universal comment was the similarity to last year's exhibition, not only in mass but in detail. To a very large extent the same features occupied the same places on the floor. The attendance was not so great as in former years, but from a technical viewpoint the exhibits left nothing to be desired. They were excellent. The Rose Gardens of the two Piersons, competing against each other as before, showed better finish, albeit the same treatment as before, and opinion was about equally divided again this year as to whether or not the judges had erred.

The decorative groups of private estates, arranged by the gardeners, ran a close contest; and here again there was much diversity of opinion as to the fitness of the awards. Mrs. Willis Martin's presentation cup for the most

artistic exhibit in the exhibition was awarded to the group staged by Mr. Fardell for Mr. Booth, Glen Cove. The award was made by an outside committee of ladies and was based entirely on art lines. This garden is shown in the accompanying photograph.

Again, another leading feature was the Rockeries. These were even more charming than before and clearly reflect the demand that has arisen generally for this latest phase of garden embellishment. Naturally they typify rather than illustrate, inasmuch as at the time of the year when the exhibition is held, the plants employed are all forced, and in consequence, we get advance season combination.

It would seem desirable that in future exhibitions the management give attention to a change of presentation. Variety lends interest and life, and it is hardly likely that there can be much better quality of the product displayed, nor can there be very much change in the material employed. The opportunity

(Continued on page 258)



Mrs. Booth's Group at the New York Flower Show

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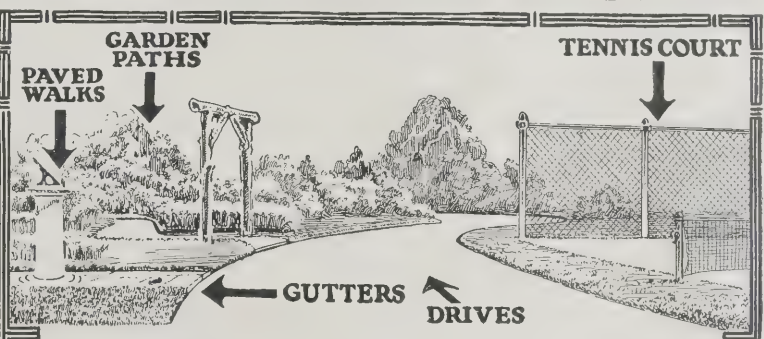
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(Continued from page 256)

advancement and novelty rests in the presentation. One attractive feature of the exhibition was a very large display of plants by the City Park Department which indicates an increased coördination of the various horticultural interests of the community.

The Tea Garden, under the auspices of the American Red Cross, served its purpose as in other years, and drew a proportionate benefit from the visitors.

Philadelphia Rose Festival

THE Annual Convention and Exhibition of the American Rose Society was held in Philadelphia March 20th to 22nd. At the business meeting, held in the Bellevue-Stratford, on Wednesday, March 21st, Mr. S. S. Pennock presiding, the usual routine of business was transacted. As officers for the following year to serve from July 1st next: President, Benjamin Hammond, who formerly served the Society so efficiently as Secretary; Vice-President, William L. Rock. Honorary Vice-Presidents: Rev. E. M. Mills, D.D., W. K. McKendrick, J. Horace McFarland, Dr. Robert Huey; Treasurer, Harry O. May. The newly elected Secretary is E. A. White, Professor of Horticulture of Cornell University.

Interim reports of various committees were submitted on Rose nomenclature and on Management of the Various Test Gardens that have been opened in different parts of the country. The work of the Rose Society is broadening out rapidly, and the increase in membership is in a degree due to the splendid work done by the preparation under the auspices of the Society of the Rose Annual, of which the 1917 edition has been issued.

The Rose Exhibition was a great artistic triumph. The floor of the Armory was completely filled with Rose displays chiefly by local growers and florists. The decorative use of the flower was abundantly illustrated. Dreer's contributed a distinctly educational note in an exhibit which comprised a greenhouse set in beds of Roses and filled with Roses. Every plant was in flower, and there were hundreds of them, and everything was properly labeled with its name printed in large type. The famous Californian novelty Los Angeles was on view, a vigorous almost rank grower, with sturdy canes thickly set with stout thorns, and the flowers a pleasing shade of pink and of large size.

Another novelty, the introduction of which, in 1918, will be looked forward to keenly is Golden Emblem, which as seen at this exhibition would appear to be the best yellow colored Rose. Staged as an H. T., it is evidently strongly impregnated with Pernetiana blood, and the future will have to tell its merits.

"A Bit of Paradise"

THIS is the title under which the Spring Show of the Massachusetts Horticultural Society made its announcement, and the description may be said to fit. It was a splendid exhibition of well-grown plants, and a feature was the Flemish Garden of Farquhar. An innovation which may well be adopted by other organizations wherever they hold exhibitions was the presence of a staff of expert gardeners whose duty it was to give information to the exhibitors to explain the exhibits and in other ways do all in their power to make the horticultural display what it is al-

(Continued on page 260)

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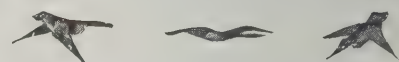
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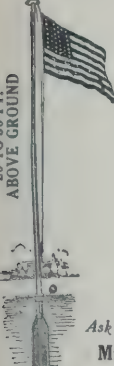
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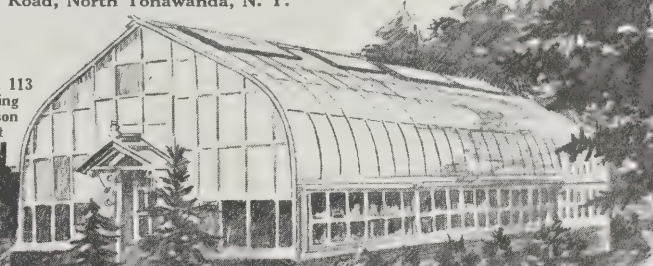
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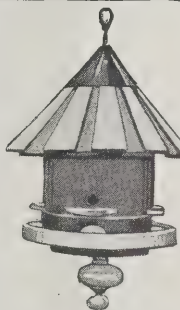
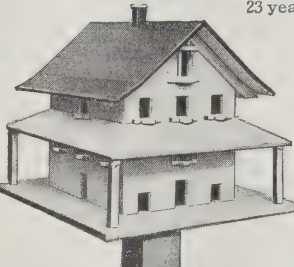
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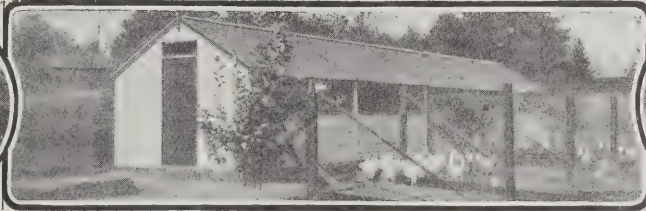
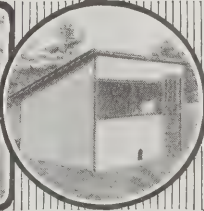
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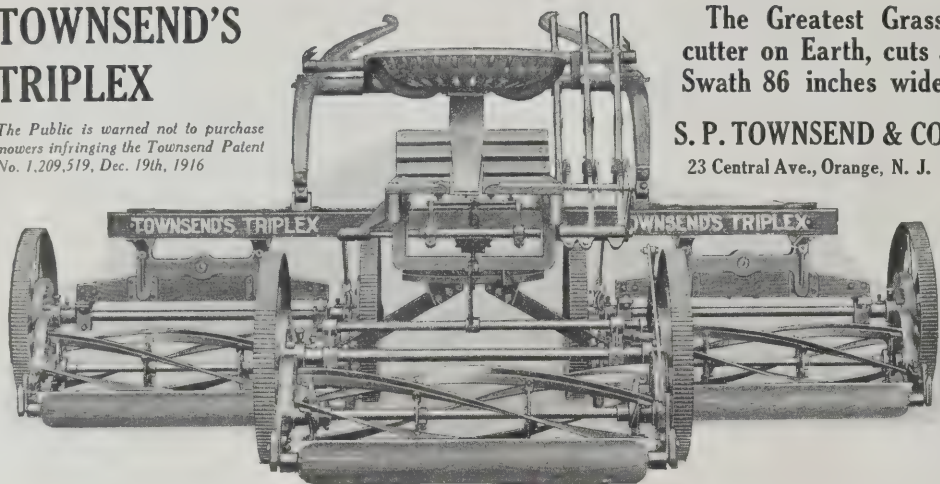
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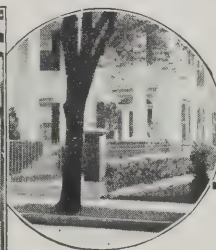
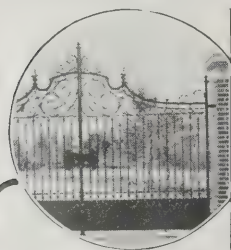
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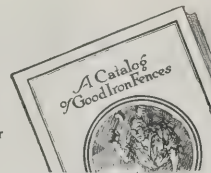
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(Concluded from page 258)

ways supposed to be, but hardly ever is,
namely, really educational to the public.

To President Saltonstall, who originated the
idea, the thanks of the unskilled public was un-
stintingly accorded.

California Dahlia Growers Unite

WITH the object of combining activities
so as to act as a unit in popularizing
the Dahlia in the West, the two California
organizations devoted to the interest of the
Dahlia (The California Dahlia Society and the
California Dahlia Growers' Association) have
been merged into one organization under the
title of the Dahlia Society of California.

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The Dahlia planting season in California
corresponds exactly with that of the East,
the season being late May and up to July
15th.

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urer, F. C. Burns, San Rafael, Cal.; Corres-
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cial and Recording Secretary, C. S. Quick,
Berkeley, Cal. The Annual Exhibition will be
held at St. Francis Hotel, San Francisco, Sep-
tember 21st and 22nd.

A Spraying Calendar for Roses

THE Talbot Garden Club of Trappe, Md.,
(Mrs. P. B. Spring, Pres.) has covered
in the convenient form of a card for hanging
on the wall directions for spraying Roses as
follows:

Early in the spring, before growth begins,
spray dormant rose bushes and soil thor-
oughly with scalecide or some form of lime
sulphur.

As soon as the leaves begin to push out
spray weekly with bordeaux, to which add
arsenate of lead, 1 tablespoon to 1 gallon;
or use Pyrox, a compound of these two.

Beginning May 1st, spray every 10 days
with 1 ounce Potassium Sulphide, 2 gallons
water, for mildew, throwing spray on under
side of leaves as far as possible.

For aphid or green fly use strong tobacco
water, dipping the affected branches into it
when possible. Also dust tobacco on to leaves
when moist.

For slugs or worms use a "contact" insecti-
cide—kerosene emulsion, or whale oil solu-
tion; also white hellebore (fresh)—1 ounce
hellebore, 3 gallons water.

The following remedy for rose bugs is
recommended and is worth a trial: 3 pints
sweet milk, 3 pints kerosene, 1 quart water.
Shake well together. Add $\frac{1}{2}$ pint to 1 gallon
water, stir well and spray the Rose bushes,
wetting the ground thoroughly over the
roots. Use every 10 days during the bug
season.

A radical policy pursued in one garden for
several years has greatly diminished the an-
nual crop of rose bugs. The season of the bug
is only about three weeks, and by the time it
appears the height of the Rose bloom has
passed in this particular garden. The blos-
soms are all promptly cut off except the very
green ones, when the bugs appear, and a star-
vation blockade established. The discour-
aged bugs disappear, and by the time the
Roses begin their second bloom the pest is
over.

After June all sprays may be used less fre-
quently.



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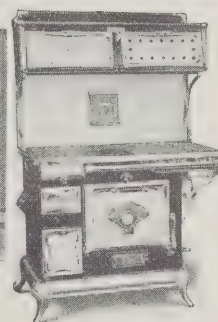
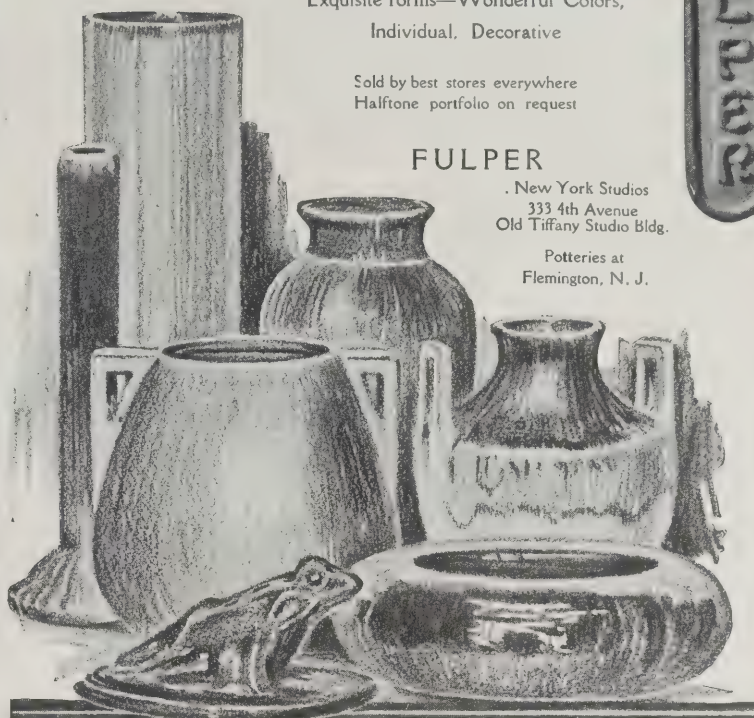
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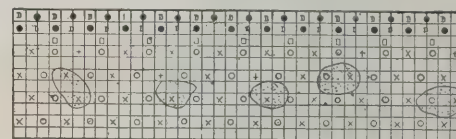
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Companions for Larkspurs

DELPHINIUMS associate charmingly with either Madonna or longiflorum Lilies. As happy in association are the white Japanese Irises, single and double. An effect of great richness has been attained by using Delphiniums for a background and massing Japanese Irises, *Yo no no-umi* and *Monarda didyma* in front. The deep blue Japanese Irises and the charming sky-blue *Kumo-no-sora*, form, with Delphiniums, a garden picture that might well be entitled a "study in blues."

I have often seen yellow suggested as an appropriate color combination with Delphiniums, but the yellows do not, in my opinion,



Larkspurs alternated with Phlox as background for Japanese Irises and Snapdragons

- English Hybrid Delphiniums
- D Phlox
- Oriental Poppy Blush Queen
- + German Iris (pale blue and pink shades)
- x Japan Iris
- O Snapdragons

bring out at full value the unrivalled color of the Larkspurs. I have often thought that the advocates of a yellow and blue color scheme are speaking two words for one. Yellows and one for the blues, for yellow is a difficult character in the average hardy garden, blue being one of its few friendly associates. Forget-me-nots, the azure Delphiniums and Anchusas are undeniably beautiful with pale yellows, such as English Primrose, and the delicately tinted hybrid Columbine, but the darker shades of both colors are happier apart. Nothing is more beautiful with the matchless deep blue of the formosissima Larkspur than the snowy white of the early flowering Phlox Miss Lingard, or the stateliness of Madonna Lilies.

The tall branching Nice Stock, *Mont Blanc*, where it can be successfully flowered in summer, is beautiful as a foreground planting with Delphiniums. A white *Salvia* new to me, *Salvia globosa*, the remarkable inflorescence which covers the plant like a drift of snow, will be of value for the same purpose.

In one of my own borders alternate plantings of Phloxes in harmonious shades and Delphiniums forms the background for fine Japanese Irises in white and varying shades of blue. Among the Irises there are plants of Snapdragons in delicate colors, with an edge of Dwarf Pinks. The informal growth of Snapdragons lends grace to the otherwise stiff planting of Irises and covers the yellow foliage of the latter with friendly flowers in frost. Spring effect is provided by clumps of late blooming Tulips and German Irises, *Dalmatica*, the newer *Lohengrin* and *Majesty*, while early June will, I hope, find flower the pink Oriental Poppy Blush Queen.

A perennial stately as the Larkspurs and an excellent associate in upholding the dignity of the border's background is the *Plum* Poppy, *Bocconia cordata*. Single and double Hollyhocks are also good for the purpose coming into bloom after the first flowering of the Delphiniums, their vigorous growth affords a cover for the Larkspurs during their latter's brief period of rest and, when they turn experience the garden shears, their business is effectually concealed by the luxuriant second-growth of the plants they have similarly befriended.

Mass.

E. HERRICK

The GARDEN MAGAZINE

JUNE 1917

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CHESTER JAY HUNT

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The Garden Magazine

VOLUME XXV

JUNE, 1917

NUMBER 5



AMONG OUR GARDEN NEIGHBORS

Detroit Dark Red is the best beet we have ever grown. It may be that it would not be as good if we had allowed it to grow all summer and use it in fall and winter, when other beets we have grown are woody, tasteless, and require long boiling to make them even edible. The way we handled it the last two years was to pull and can the beets when not larger than $2\frac{1}{2}$ inches in diameter. They are then tender, stringless, full flavored and easy to cook and can. Our whole year's supply was canned in August. We did not have a single beet root to store in the cellar. The points we like best about this beet are its excellent flavor, its deep rich, dark color, and its freedom from woodiness—as we have handled it. Our soil is a heavy limestone clay which bakes very badly in midsummer because deficient in vegetable matter. Our garden has not been irrigated.—*M. Grenville, New York.*

Blue and Gold.—Back of an old gray boulder in my garden, which in summer is so overgrown with Honeysuckle that we have continually to trim in the vine to keep its sun dial clear is in blossom to-day (April 22d), a beautiful bed of the rich, blue *Chionodoxa sarnensis*. Back of the bed are two clumps of white Snowdrops still in blossom, and this morning the little *Narcissus cyclamineus* hung out its dainty yellow bell with the reflexed perianth. The combination of blue and gold is so especially charming that I made a note of it that others may try it. The two flowers also combine well in size as *Narcissus cyclamineus* is not only earlier, but smaller than the other daffodils.—*M. R. Case, Hillcrest Farm, Weston, Massachusetts.*

[We are glad to know of someone who is successfully growing this delightful little alpine bulb.—*Ed.*]

The "Best" Radishes.—Mr. Kruhm's notes on radishes and F. T. R.'s letter of difference concerning *Crimson Giant Globe* and *Icicle* are interesting, particularly as F. T. R.'s remarks about the keeping qualities of these two varieties contradict my experience and observation for a number of seasons in many localities and under different conditions.

A large quantity of seed sold as *Crimson Giant* is of very inferior quality and has nothing in common with the true *Crimson Giant*. When F. T. R. says the first roots were "big enough to eat" at the same time I believe he

must have had a strain differing widely from the original *Crimson Giant*, which was introduced some time ago under the name *Wurzburg Giant Forcing* and was renamed *Crimson Giant*. My experience with the *true stock* of *Crimson Giant* is that it is decidedly earlier than *Icicle*, but the roots do not form all within a short time. The contrary is the case

with *Icicle*—that is to say it is later but the majority of roots reach edible size within a short time.

Both varieties sown side by side at the same time and given the same cultivation show that *Crimson Giant* is earlier, not only with its first edible roots but also with the main crop. *Icicle* comes in later with the first marketable roots and also with the main crop. When it comes to keeping qualities, *Icicle* surely has it on *Crimson Giant Globe*, the flesh of the former being somewhat firmer making it a better keeper. The fact that a few late forming *Crimson Giant* outlast the main crop of *Icicle* cannot be considered. I have seen both varieties overgrown and both were pithy, but sowings made at the same time will show that *Icicle* is still fine while *Crimson Giant* is unfit to eat.—*Seedsman.*

Who Cultivates A Garden Helps

THE problem of food supply for the nations can be largely solved by increased individual production of garden crops for home consumption. Everything that is thus raised and used helps the general situation by leaving in the market an equivalent amount of material. In the aggregate such production is prodigious—a slice of bread a day ($=\frac{3}{4}$ oz. flour) saved in the twenty million households of the country would liberate the yield of 470,000 acres of wheat, to say nothing of all the related labor of transportation, handling and storage.

The present issue of THE GARDEN MAGAZINE was largely re-cast at the last moment in order to better meet the present urgent needs of the country. Elsewhere the reader will find material dealing specifically with the activities of the current month, as regards (1) present planting of new ground, (2) planting for succession, (3) application of efficiency methods in handling, cultivating, fertilizing, etc., and (4) the need of preserving from waste all surplus of the garden.

Current needs have attention this month. In the "Patriotic Garden" of subsequent numbers the then current details will be given timely attention.

The "One Best Bet" for the Woman.—Throughout this country-wide agitation of "What to Plant" as a step to preparedness for the woman amateur gardener who feels willing and eager to her finger tips, but inexperienced except where flowers are concerned, three requirements seemed to stand out vividly in my mind—the thing undertaken must be easy to grow, easy to dry, easy to store. And the answer is either Navy beans or Black Eyed peas, both for our own consumption and as our contribution to the soldiers' families who may need help next winter.

We all want to have something to give and if we heed the words of wisdom from eminent, long headed agriculturists and economists it is more than apparent that there is small assistance in *buying* in order to give—we must *produce*, to render real assistance. Otherwise, the shortage is merely pushed on round a circle. Corn, grain, potatoes, as an extra crop, seem to a woman so vast an undertaking that she is submerged by the bare contemplation. With the aid of a young gardener, whose hands are already so full he is half distracted, she feels she cannot "tackle" it. But a row of trim peas or beans presents no such terrifying picture either in the planting, tending, gathering, or storing. This bean and pea idea had been in my brain, bobbing up at every mention of the food question for a month, and I had come to the point of wondering why the sense of it was not more readily seen and generally accepted, when I went to Washington to the Woman's National Farm and Garden Conference and could barely

subdue a frantic desire to shrewishly scream out "I told you so!" when no less than four experts recommended their planting. Dr. Knapp, of the United States Department of Agriculture, voiced a plea for all dried fruits and vegetables. He said they were not being used nearly as generally as formerly, years ago, and that now of all times was the moment to revive them—peas and beans being especially indispensable. Miss Bagg, as representative from the Royal Horticultural Society of England, in speaking of how America could best serve the Allies said: "Money and food, before men. The dried foods are paramount in importance, being easy to handle and transport." And Miss Creswell, expert on canning, spoke of the shortage in cans (there being almost 50 per cent. less cans available this year than were used last) and of the large increase of price in glass jars; she said "People should realize this and every one should plant staples which do not require canning—every one may grow peas and beans to dry and if they only would it would be of enormous value to the country." Clinching the matter, our Assistant-Secretary of Agriculture, Carl Vrooman who has spoken and written much on the present Agricultural situation says, in connection with substituting vegetables for meat, "In the war we shall probably be called upon to supply meats to our allies, along with wheat and many manufactured foods. We produce no excess of meats. Moreover, you cannot grow beef cattle in a few weeks or months. But by planting now—such legumes as beans, cow peas, and peanuts, the meat supply can be supplemented materially this summer. The public does not yet realize that these vegetables are so rich in protein and nourishing fats that they open up food resources which it would be criminal to neglect." In varieties, the consensus of opinion seems to be the Black Eyed pea and Navy bean. It appears in Virginia the former is as indispensable as the potato but in many other States people have not even a bowing acquaintance with them.

On good authority I find an easy and economical way to grow them in connection with corn. To every grain of corn drop in two or three peas; the corn is in no way inconvenienced or affected and the cultivation and care of one serves the other. When planting alone use one quart of peas or beans for a row 150 feet long. I think our meagre acquaintance with these products is chiefly confined to an occasional purchase to form the foundation of thick soups, but they can of course be served as winter vegetables—the beans baked, à la Boston-baked beans—and as regards their nutritive properties we have just heard from one who knows that they stand high in the list. It goes without saying that when I think of this huge country and my tiny bit of coöperation it all seems too laughable to seriously entertain but, on the other hand, many drops must fill the bucket, and unless we all take care of our own special little problem we are bound to call on the resources of the country which, we all agree, must go elsewhere. In addition, a principle seems involved—if we fail to "do our bit," aside from materially injuring the United States, we lower the morale of the finest country in the world. Lately, whenever the question has been asked: "What is your Garden Club going to grow to give away next winter, to help the general tension?" I've hardly been able to suppress a smile, as I waited for the stock answer: "Oh, we are all growing an extra row of carrots." Of

course I know carrots are supposed to enhance the beauty and general charm of the consumer and I suppose the needy might have personal vanity enough to feel a certain thrill of appreciation and pride as they approached their mirrors, in spite of the fact that, in all likelihood, they had to tighten their belts, but personally I should prefer feeling that in giving substantial dried foods I was helping to produce a little muscle and brawn, bringing a tinge of red into a child's cheek and inducing—in certain regions unmentioned—that comfortable feeling, described by the omnibus of Paris, which, when unable to shelter further occupants, swings out a sign bearing the word "complet."—*Hally Carrington Brent, Maryland.*



Violets and Irises are used along the terraces of this hillside garden to hold the soil and prevent washing

A Hillside Garden.—My garden is 85 x 150 feet, on a hillside sloping south, which is an ideal exposure for this climate. The hill is really a "half grown" mountain, which here we call a ridge, so it is rather steep. I had it plowed and left rather deep furrows. In my ignorance, I thought it would keep the soil from washing. After it was all planted in early vegetables, such as green peas, beets, etc., I waited for the seed to come up. A hard rain came first, water formed in the furrows, and as it sloped a little to the centre, a break came; water, seed, and earth came down the hill together and seed came up everywhere except on those beds. I was discouraged. Wise heads suggested planting on the level. I did, with even worse results. I replanted, but will not dwell on my failure that year.

I was determined to have a garden, so in the fall, I divided the hill into four sections, terraced it by making a drop two feet or more. Then a three-foot walk at the base of each terrace. I had it limed and plowed, then planted Crimson Clover as a winter crop, both for benefit of the soil and to hold it during the winter. Wise heads were sure my banks would wash unless sodded. I had no sod, but I did have an abundance of California Violets and German Iris, so I planted a row of Iris at the top of the bank and the Violets on the slope, another row of Iris on lower side of walk. It was planted *very thickly*, so there would be no break for water to get through. It not only holds the dirt, but is a beautiful sight when in bloom. Where I had to build the terraces up, one man plowed a deep furrow, another filled it in with corn-stalks, leaves, and any rubbish convenient. The next furrow plowed would cover it. It re-

quired much work, but it paid. I now have good soil, and best of all, no washing. The picture shows how pretty it is, even when not in bloom. Last summer, it was put to a good test. For a month, we had rain almost every day, on several occasions, a "near" cloudburst, but not a wash! In one section, I have four rows of red raspberries and four rows of strawberries and any winter crop, such as spinach, mustard, and turnips (which we plant here for early spring) so that section is not disturbed, but mulched with leaves and straw. The other three are plowed and left rough, the freezing and thawing make it very mellow by spring.—*Bland N. Tomlinson, Tennessee.*

Bulbs and Peonies.—"It's always fair weather when good fellows get together," and likewise there is always good talk when gardeners get to gossiping. I agree with Mr. Rockwell when he says that this column is just like a walk and a talk in a friend's garden. We have a "gossip exchange" at every meeting of The Garden Club of Myers Park, Charlotte, N. C., as every member answers roll call with an experience or a question, and some of the information thus gained seems to me to be worthy of my passing it on.

At this season of the year our attention is on bulbs, and we have learned, by tales of bitter experience, that bulbs must be allowed to die down in their own sweet time, and will resent being hurried out of the way. So never disturb them when the tops are still green, and *never* cut down those green tops. Tulips have short legs, we have also learned, only because you have expected nothing better from them, and have planted them too near the surface of the ground. Plant them deep and their pride being thus aroused, they will rise to heights of glory. A club member who has proved by her beautiful Peony blooms that she knows what she is talking about, tells us not to fertilize Peonies until just before blooming time; early fertilization makes a rank growth of leaves and stems at the sacrifice of blooms. She also recommends fertilizing Peonies with manure water (water in which rotted manure, tied in bags, has been allowed to stand for some time).—*Sarah P. Thomas, Charlotte, North Carolina.*

A Comment on The Garden Magazine.—I have read Lennie Greenlee's complaint in a recent number and the replies thereto in later issues. I like some articles better than I do others because I am able to carry out their lessons. I take it that THE GARDEN MAGAZINE is a publication intended to serve a very large and varied public. Some wealthy subscribers with unlimited space and means with professional gardeners to carry out the work, some subscribers with only moderate means and good-sized space, and others with small means and space. Your duty is to try to serve all. As far as I am concerned I like to read an article even if I am not able to carry it out in practice. I really enjoy reading the advertisements. They are helpful too.—*Mrs. R. W. Walters, Springfield, Ohio.*

More About the Globe Thistle.—Anent Mr. Dulles' remonstrance in the April GARDEN MAGAZINE against the recommendation of Globe Thistles, Echinops, for ornamental purposes, I would like to say that I have been growing them for many years—all the kinds I could get, and can say with some authority that there is no danger of any becoming an annoying weed, or even naturalizing itself sparingly save one. After eight

years, only one has appeared in the meadow—a pasture—beyond my garden enclosure. This is the Silver Thistle, *Echinops spaeroccephalus*, a European species. It is a strikingly handsome plant growing from five to seven feet tall, with spiny, glaucous foliage and silvery thistle-like flower heads. It is a hardy and prolific seeder, able to raise up a family in heavy grass, rocky soil or a well made gravel path. But as it is of *biennial* duration, no danger from it need be feared if the flower heads are cut off before they seed.

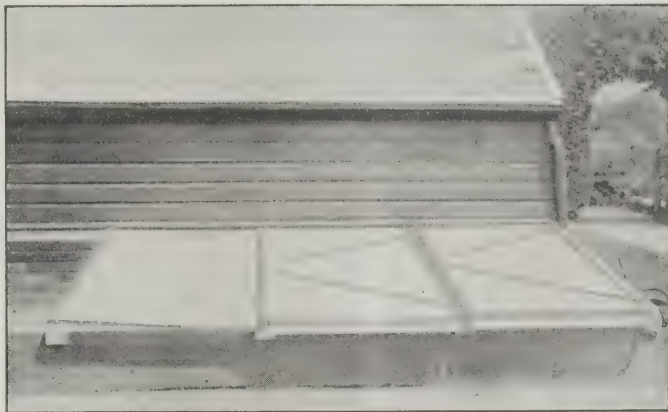
The two varieties generally grown in this country, *E. bannaticus* from Eastern Europe, and *E. Ritro* from the shores of the Mediterranean, are most conservative in their behavior. The latter does not self sow at all in my garden and the former but sparingly, and not with anything like the persistence of Phlox, Spiderwort, Hollyhocks, and many other time honored garden plants that have not become a menace to the farmer. I have never seen the Silver Thistle in any garden save my own. I hope my experience with these particular Thistles may reconcile Mr. Dulles to their use for they really are most decorative and beautiful.—*Louise Beebe Wilder, Pomona, N. Y.*

Ancient Ideas.—In the GARDEN MAGAZINE for April, page 159 is a note under the title "A trick with Poinsettia cuttings" in which it states "that a bean, pea, or other seed placed in the split end of a cutting will form a root for the cutting, etc." If the editor allowed this in the magazine as a joke, I think it should be labeled as such, as there are still many people that would consider this a real bit of news, and I feel that it certainly takes from the value of a paper that is considered reliable to have such foolish things printed without comment as to their falsity. Such items should be given under a separate heading of "Some ancient ideas concerning gardening."—*Albert F. Carter, Greeley, Colo.*

[Quite right, it is so ordered, hereby! But

really it never occurred to us that there would be any necessity of labeling a thing so obvious. Our mistake!—*Ed.*]

Starting Seeds in Summer.—During the summer weather it is very difficult to get seeds to germinate properly because of the hot suns and the general dryness of the air. If left for a single day without water the vitality is burned out of the seeds. Shading during the germinating period is a great help and should be practiced, but too dense a shade is bad too; and any shade must be removed at the first evidence of germination. A quick change



Frames of lath covered with cheesecloth used to shade seed beds in summer ensure germination

ofttimes ruins the tender young seedlings. A scheme which I like very much is to cover the frames with cheese cloth. This admits air and light, but still breaks the direct rays of the sun sufficiently to enable one to keep that evenly moist condition in the soil which is so essential to seed germination. The frames are made of shingle lath with plaster lath cleats to keep them in shape; the cheapest cheese cloth is good enough for this purpose. Make the frame the same width as the cloth.—*W. C. M.*

Preserving Flowers.—A few years ago, while traveling in the South, I met an old Japan-

ese gardener and became interested in his odd methods of growing and preserving plants. I learned a number of things from him, among others the art of preserving flowers in their natural forms and colors. I have since experimented with a number of flowers, such as Asters, Cosmos, Calendulas, Calliopsis, Cornflower, Marigold, Sweet William, Scotch Pink, Stocks, Zinnias, etc., and with few exceptions have had good results.

Fine sand is necessary, which must be washed until all the soluble particles are gone, when the water runs off quite clear. When the sand is thoroughly dry, pass it through fine and coarse sieves so that all large grains will be separated. Store the sand in a perfectly dry, warm place. Cut the flowers when fully developed, taking care that they are not wet and bury them in the dry sand.—*S. H. Garekol, Maryland.*

Why not let the Editor know?—To the Editor's desk the other day came a letter from a gentleman whose note in a recent issue of THE GARDEN MAGAZINE had evidently been very welcome to a host of readers. He said, *inter alia*: "I had more correspondence I think about that Matilija Poppy story than anything I ever wrote before."

It is of course gratifying to learn that so much interest was evinced; but there's a sad side to the story.

Not a solitary letter of comment reached the Editor. Here then was a note that the readers liked; they would probably like to know more of the Matilija Poppy, but the Editor has *nothing whatever to justify his affording that plant a single line of space* in the future (except for the accident of a personal letter on a different subject).

Now the point of this paragraph is to impress on the individual reader once again the propriety, to say the least, of addressing to the Editor letters arising out of the contents of the magazine. Besides, it will be a really practical help to the making of a magazine that will better and better serve the readers' interest.

THE MONTH'S REMINDER

JUNE THE MOST EFFICIENT PLANTING MONTH FOR ACTUAL FOOD CROPS

If you are a fresh recruit in the army of the spade and hoe and "in the dark" about anything whatever concerning your garden write to our Readers' Service Department, stating your trouble. We are anxious to help.

WE ARE at war! We are at war for the avowed purpose of making Democracy, not only international but universal! Every gardener in the land has a part to take in the fight! His duty awaits him just as certainly, and, if anything, more imperatively, in the rows of vegetables in his garden, as does that of the soldier in the trenches at the front. The gardener who neglects his work and loses a crop which might have been saved, or who fails to plant even a few rows of vegetables, which might have been "worked in" by a little more intensive culture, will have brought down upon himself the opprobrious epithet of "slacker." World famine begins to loom up as something more than a remote possibility.

Shoulder your hoe, or your compressed air sprayer, and do your "bit"!

GET PLANTING DONE SOON AS POSSIBLE

IN MANY sections, there is danger of late frost up until the first week in June. Under these conditions, the setting out of the more tender vegetable plants, such as tomatoes, eggplants, peppers or melons, squash, lima beans, or sweet corn, started in paper pots, in a cold frame, must be delayed until it is safe to plant, but should not be postponed beyond that time. Every day counts in the short interval between the last frost and the beginning of the prolonged dry spell which is likely to come within a few weeks thereafter. The later the tender things have to be set out,

the more imperative it is to supply them with fertilizer mixed in the soil directly in the hill which will supply an abundance of quickly available nitrogen. Chicken manure, sheep manure, or a little ground bone and dried blood mixed together are all excellent for this purpose. This enables the plants to begin growth at once instead of having to wait until they develop the root system. When planting, use plenty of water *under* each plant, at the bottom of the hole.

DEFENCE AGAINST THE ENEMY!

THE most important factors in cutting down the yield of the average home garden are insects and diseases and lack of sufficient moisture. Prepare, at once, if you

have not already done so, to carry on your war, which is sure to come, with the former. If you are a newcomer and cannot look up back numbers of *THE GARDEN MAGAZINE* which give information in detail about the various garden pests write to the Readers' Service Department for help. Briefly, the "strategy" of garden warfare is as follows: There is one corps of garden pests such as potato bugs, cabbage worms and others of similar nature which live by actually biting off, chewing and swallowing parts of the foliage or stems or fruits. You campaign against these with an *internal* poison which may be sprayed on the plants in either wet or dry form; the approved ammunition is arsenate of lead. Another army of the enemy includes the various plant lice or aphids such as infest Roses, pea vines, melons, etc., also scales of different types, which are not affected by internal poisons because they live by sucking the juices from the inner tissues of the plant. Attack these with sprays which kill by contact—of which nicotine extract or oily emulsions are the best. The stronger the solution, the more convenient to handle and the more economical to use.

Various vegetables, and some flowers may be assailed by "blight" and "rust"—or anthracnose. Intrench yourself against these by preventive fortifications of bordeaux mixture, which can be bought in stock form and used after dilution with water, according to directions; dry powder for dusting on is very convenient for small gardens.

It is quite practical to use a combination spray, containing all three of these ingredients, which will be effective at one operation against chewing insects, against sucking insects, and as a preventive against blight, rust, etc. If you have a compressed air sprayer and are using wet sprays, use the combination of arsenate of lead and bordeaux spray (see page 278) and add to it before using, nicotine sulphate. If you are using a "dry" duster, you can get the combined arsenate of lead and bordeaux in powder form. A small hand sprayer, in which tobacco or oil preparations can be applied on the first appearance of any plant lice or any sucking insects is most useful. The great secret in being successful with your spraying, is to have your materials on hand, and to be able to "shoot" immediately upon the first appearance of the enemy.

GARDEN PRODUCE MUST NOT BE WASTED!

THIS year, of all years, must be a canning year! Take this hint and act on it promptly. Buy your cans, or glass jars, if you have not already done so, at once. There will be an unprecedented shortage of these things before the season is over. Also save any wide mouthed bottles, pickle jars and so forth. Many gardeners fail to do what should be done, and that is, throughout the season to use up all available vegetables as soon as they are ready, and *before they are old* and tough. What isn't eaten must be canned. Beans often mature much faster than they can be used upon the table. Here-tofore the majority of gardeners did nothing with the extra part of the crop—it was allowed to spoil on the vines. This year the tactics must be changed. Pick all pods as soon as they are large enough to be used. Eat or give away what you can at the time, and then can the rest. If any of them get too old, pick the pods as soon as they begin to dry up, instead of leaving them to spoil on the vines; they can be shelled out and used as dried beans for winter. Next month's GAR-

DEN MAGAZINE will have more to say about canning and drying.

IMPORTANCE OF WATER

NO ONE thing which you can do will go so far toward insuring the success of your garden and the production of a big yield as the installation of a modern irrigating system—no matter how small or how large your garden may be. The expense is little. With this year's prices for vegetables it will probably pay for itself two or three times over before freezing weather. Elsewhere, in this number of the *GARDEN MAGAZINE* (and in next month's), you will find particulars of the various systems. Study your own problem

DO THIS MONTH

- ✦ Finish setting out *tender plants*.
- ✦ Spray for *insects and diseases*.
- ✦ Be prepared for *saving all surplus* garden produce.
- ✦ Put in a *modern irrigation system*.
- ✦ Attend to *succession plantings* in time.
- ✦ Plant for an *ample supply of winter vegetables*.
- ✦ Keep on *planning* as well as planting your garden.
- ✦ Do all the *mulching* you can to conserve moisture.
- ✦ Keep *flowers cut* daily.
- ✦ Keep the *lawn rolled*, and don't cut it too short.
- ✦ Prepare to grow your own potted *strawberry plants*.
- ✦ Try some of the *newer salads*.

PLANT THIS MONTH

Vegetables; from seed: bush and pole beans, lima beans, corn, cucumbers, melons, martynia, okra, pumpkin, squash, cos lettuce, French endive, Chinese cabbage.

Plants: in northern sections, from frames; Lima beans, corn, cucumbers, eggplants, melons, peppers, squash, tomatoes. Toward end of month, from seed bed: Brussels sprouts, cabbage, cauliflower, celery, kale, leek, late tomatoes.

Succession crops: beans, beets, carrots, corn, cucumbers, kohlrabi, lettuce, peas, radish, turnips.

Flowers; from seed: tender annuals, such as Balsam, Begonias, Castor Bean, Dolichos, Impatiens, Portulaca, Salvia, etc.

From pots: tender bedding plants, such as Begonia, Heliotrope, Musa, Salvia, etc. For late gardens: Roses, hardy perennials, etc. (from pots).

For Fall and Winter Use; in seed border, to transplant later to pots: Antirrhinum, Begonia, Carnations ("pinks"), Geranium, Heliotrope, Lobelia, Mimosa, Petunia, Stocks, "Silk Oak," Verbena.

Bulbs and Tubers; Callas, Caladiums, Gladiolus (succession plantings); Cannas, Dahlias, etc., where not already planted.

carefully, and make your selection accordingly, but—*put in irrigation*. If you are at all handy with tools, you can do the work yourself—as there is nothing to it, but the joining together of pipes valves, etc., which can be bought ready fitted if you give the proper dimensions when ordering.

ATTEND TO SUCCESSION PLANTING

ONE of the greatest faults of the average home garden is the gaps between the crops. After the spring planting is done, one is likely to think that that part of the work can be forgotten until it is time to put in the fall things. Don't make this mistake. Keep up succession plantings especially of beans, sweet corn, lettuce, radish and other things which go by quickly after they reach maturity. Small plantings made often is the proper method of procedure.

KEEP PLANNING AS WELL AS PLANTING

UNLESS you have made out a garden plan which shows everything to be planted throughout the season, give some thought now as to the best things to follow the crops which will be out of the way during the next few weeks. (See p. 275). Do not

wait until the ground is clear before deciding. Next make the most of small area by inter-planting—two or three weeks can usually be gained by planting the new crop *between the rows of the old*, or between the plants that have not yet been harvested. The beginner at gardening will find one of the efficiency charts, on which the vegetables are represented by strips of card-board, corresponding to the length of time the particular vegetable takes to mature, a very real convenience for planning successions throughout the season so as to get the maximum yield from the piece of ground he may have available.

DON'T BE A BUTTERFLY!

YOU know the old fable of the butterfly and the ant, and of how the latter provided her winter requirements in advance. The trouble with the butterfly was not that she was lazy, but that she lacked foresight. Plan now for your winter supply of vegetables. If there is not sufficient room for a good supply of root crops, such as beets, carrots and turnips and so forth, get a little extra ground somewhere for these things. From the present outlook they will be about worth their weight in gold next winter.

MOISTURE BY MULCHING

YOUR crops of gooseberries, currants and strawberries will depend to a very large extent upon the amount of moisture you can keep in the soil about their roots. Use all your grass clippings and other mulching materials that may be available for this purpose. Grass clippings in the strawberry bed make an ideal mulch. They are clean, are short enough to pack down tightly about the plants and are not likely to blow around. One watering through a mulch of this kind will do as much good as three applied in the ordinary way.

KEEP ALL FLOWERS CUT

SWEET peas, and all other flowers particularly the annuals, will stop blooming much sooner if the old flowers remain on the plants and "go to seed." Keep the flowers cut daily. If you have not time to cut them yourself, let someone have them for the trouble of cutting them.

RAISING STRAWBERRY PLANTS

TO GET the biggest and the finest strawberries, not only should the vines be grown in the "hill" system, but if you want one hundred per cent. next June from berry plants set out in July or August, you should have potted plants. Select a few of the best plants in your bed now and mark them with small stakes. As soon as the new runners have formed, get 3 or 3½ inch pots and fill them with regular potting soil if that is available. If not, the soil where the ordinary strawberry plants are growing will do if it is not lumpy. Sink each pot up to the rim and hold in place over it with a small stone or a clothes pin, one runner, so that the first plant formed will root down into the pot. Snip off the continuation of the runner beyond this first plant. As soon as the little plant is well established in the pot it can be severed from the parent plant, and allowed to remain and develop in the pot until wanted to make the new bed. In this way, you will get plants that are well established—not one in a hundred of which need be lost when you make your new bed, even if it is mid-summer. Select runners from the best plants.

THE PATRIOTIC GARDEN

SOMEBODY HAS TO RAISE EVERYTHING YOU EAT

June Planting for Succession and Winter Supply

AT LEAST GROW SOME OF YOUR WINTER SUPPLY

MAKE YOUR GROUND WORK FOR THE FAMILY & NATION

Directions as to time given in these columns apply generally to the latitude of New York as a standard. Except where specifically otherwise mentioned allow a difference of about a week earlier or later for each hundred miles south or north, as the case may be

to the latitude of New York as a standard. Except where specifically otherwise mentioned allow a difference of about a week earlier or later for each hundred miles south or north, as the case may be

NEVER before have June-made gardens held such alluring promises of being highly profitable. Never before have late comers among

home gardeners been confronted by such possibilities as this year. And, perhaps, never again will gardens mean as much to this nation, collectively, or to the individual, as the gardens created in June, 1917. Gardens that were started weeks ago can still be made to yield bigger crops by cultivating them with higher ideals and greater enthusiasm.

Putting the June Garden on a War Basis

JUNE gardening efforts are of two kinds: (1) The work to be done in the newly started garden. (2) Plans for the utilization of garden space so that every row bears two or three crops where only one grew before.

NEARLY ALL vegetables that were sown or planted in April or May can equally well be planted also in June with the assurance that they will bear crops before frost. Exceptions are the very early short season crops, such as peas among which there are no varieties adaptable to the hot, dry months of the year. This does not mean that you could not grow peas during July or August. But they cannot be considered a profitable crop then.

INDUCE QUICK germination of seeds by every known method. Specific recommendation of this is made, later on, wherever practical. But always remember that, where seeds are "coaxed" to sprout quickly by abnormal methods, special care must be taken to plant them in a well prepared seed-bed so that the baby plants may thrive without any set back.

Getting Uninterrupted Supplies

Make repeated sowings of such vegetables as you particularly like. Classes and kinds that will do well during the hot, dry summer month and will mature before frost from seeds sown throughout June are:

Beans. Two fifteen foot rows per week of such early sorts as Bountiful, Stringless and Full Measure among the green podded; New Kidney, Wax, Brittle Wax and Sure Crop Wax among the yellow podded sorts will provide enough young beans for a family of five between August 1st and the middle of September.

Beets. Make repeated sowings of large, late sorts for winter storage.

Carrots. Handle in the same manner as beets.

Corn. Sow 2-fifteen foot rows of early sorts like Peep O'Day, Early Mayflower, Poca-

hontas, Golden Bantam, every week up to July 4th, when the last sowings should be made.

Lettuce. Sow midseason Butterhead, like All Seasons and Crisphead Iceberg throughout this month.

Radishes. Select summer sorts like Long White Vienna, Charters and White Delicious.

Keeping the Garden Busy All Summer

The June garden holds a two-fold duty for the early starter: (1) To provide fall crops by

They Also Serve:

¶ Who plant or cause to be planted garden crops to build up the world's food supply.

¶ Who spray an orchard tree and thereby save its fruit crop.

¶ Who turn to practical use, unplanted and therefore wasted acres and so help to feed the hungry world.

¶ Who will, with their own hands, plant, care for, and harvest the crops of the garden and field, releasing others who are needed elsewhere to serve their country's cause.

¶ Who save from waste, day-by-day in canning left-overs from the table, as well as drying and canning fresh crops.

replanting rows of extra early vegetables now on the decline. (2) To make repeated sowings of those vegetables which are essential for a table supply of fresh vegetables throughout summer and fall.

Rows that may be exhausted and thus be ready for replanting to second crop may be early beets, lettuce, onions from sets, radishes and spinach, also possibly smooth-seeded peas. In mapping out a programme how to use these rows from now on, keep in mind *not* to follow one crop with another crop of similar nature.

Do NOT FOLLOW beets with radishes or carrots, nor vice-versa. But plant Midsummer lettuce or endive to follow early beets.

Bush beans to follow radishes. Beets or celery to follow lettuce.

Lettuce or beans to follow onions.

Kale, kohlrabi or cucumbers to follow peas.

By choosing extra early kinds of the follow-up crop, the rows frequently become available for a third crop early in August. This is the highest efficiency in the garden, and greatly increases the value of the product.

Next Winter's Vegetables That Don't Have to Be Stored

HERE are a few vegetables that are very profitable to grow for winter use, because they do not have to be stored. Parsnips and salsify planted now in good soil will make roots of good size before freezing weather, can be left out all winter, and will be much better in the spring than if they had been sown six weeks earlier. Brussels sprouts do not produce a big yield in proportion to the space occupied, but if you sow a packet of seed now, you can transplant the plants later, sticking them in wherever there is space, and they will weather it until Christmas with no protection whatever, giving a delicious vegetable after the garden is frozen up. And don't forget kale; start the plants now, transplant later, and you can go out and cut "greens" from under the snow next winter.

Root Crops for big Values

YOU can grow three rows of carrots or beets, and two of winter turnips or rutabagas, where you can one of potatoes. Moreover, you can get a crop of summer vegetables off the ground first. All of these things can be used to take the place of potatoes next winter to a very large extent.

Begin now, and plant all the space you can spare for the next two weeks to carrots—twelve to fifteen inches is enough to allow for each row. For the two weeks following, plant beets, the same way—a row at a time, wherever you can find room. Follow the beets with turnips or rutabagas in July. This will make not only the work of planting, but that of thinning and first weeding, be spread out so that you can attend to it much better than if it all came in a bunch, from one big planting. And next winter you will have a supply of "roots" that will make you smile when you think how few potatoes you would have been able to get off the same piece of ground.

THE SELECTION of proper varieties is of paramount importance and holds the key to success of the June-made garden. When choosing, keep in mind the number of days, required by specific sorts, from sowing to maturity (see special references below).

THE CONDITION of the soil is important for the June-made garden. Be sure that it contains sufficient moisture to encourage quick germination of the seeds that are sown. If the soil is very dry, give a thorough watering *before sowing* seeds, and let the surface dry out until it can be finely pulverized with a rake. Then make the rows and sow the seeds. Watering *after* seeds are sown is not as practical because of the danger of washing out seeds.

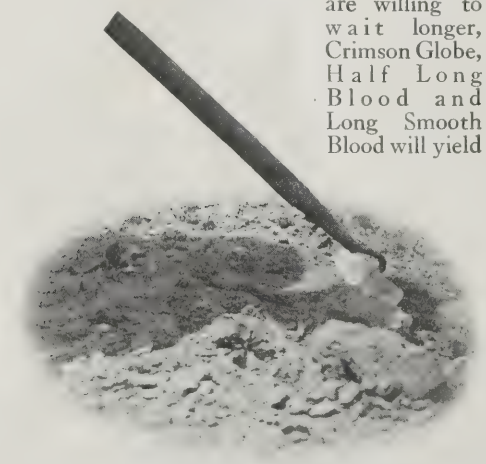
EVEN POOR soil grows fair crops of beans. If in doubt what to grow in your garden, plant beans, *any* beans. Those that aren't used as green beans become useful as dry shell beans during the winter. Pound for pound, beans are more nutritious than potatoes, require less labor at harvest and are more easily stored. Besides, growing them enriches the soil.

Profitable Crops for the June Gardens

Beans sown early in June will bear bigger crops with greater certainty than those sown sooner or later. A few years ago, early sorts sown in May suffered during a dry spell in August and the crop fell short. Late kinds sown late in June were caught by an early September frost and did not mature. Bountiful, Stringless Green Pod, Full Measure or Longfellow among the green-podded; Kidney Wax, Brittle Wax, Prolific German Black Wax, and Sure Crop Wax among the yellow-podded sorts are reliable as regards both yield and quality. Plant seeds in rows, 4 inches apart, 2 ft. between the rows, covering seeds about 2 inches deep in heavy soil, 3 inches deep in light soil. Quick germination may be induced by soaking beans over night. Put them carefully in the row, eye down. The seedlings should push through the soil within six days after planting. Select the *earliest* Pole Lima procurable—Leviathan is ideal. It is as early as the bush limas and many times more prolific. While a great delicacy in the green stage, they likewise prove great "cost of living" reducers during the winter.

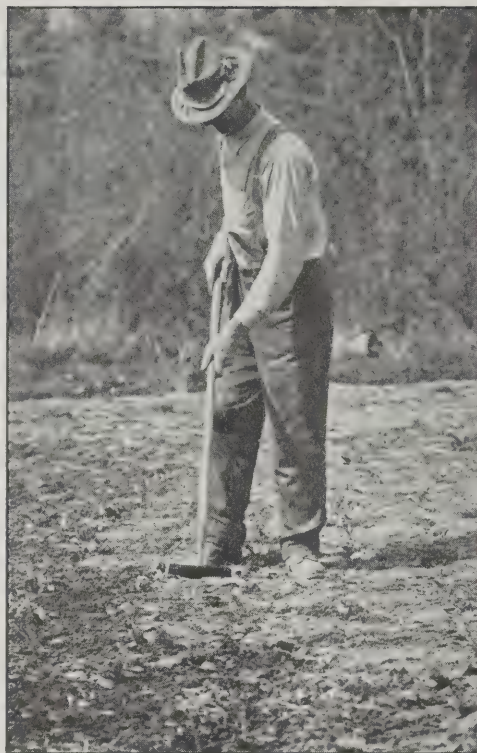
Beets are an "ideal" war garden vegetable. Within 60-70 days from date of sowing seeds, Eclipse, Crosby's Egyptian and Detroit Dark Red, will produce beets ready for use. If you

are willing to wait longer, Crimson Globe, Half Long Blood and Long Smooth Blood will yield



Hold the hoe so that the handle forms an angle of 45° with the ground. This is best for comfort and efficiency

The Planting Line to Feed the Fighting Line



Cultivation keeps the crops growing even in drought. The dust mulch $\frac{1}{2}$ inch deep conserves the soil moisture. The finer the soil the better

roots that will keep all winter. Beets require rather moist soil for prompt germination. If yours is dry, pour water *in the rows*, then sow seeds, cover with dry soil and *walk over the rows*, one foot in front of the other. This presses the seeds firmly into the moist soil. Sow seeds *thinly*. Each "kernel" is in reality a fruit and contains from two to four seeds. When thinning out the row, so the seedlings stand four inches apart in the row, save the thinnings, slightly trim both leaves and roots, and transplant them between rows of other vegetables. Any surplus can be used for the table as "greens."

Cabbage. Set out in the first ten days of June (plants, of course, which can be bought from the dealer) you can secure a fine crop for winter use. Danish Ballhead, Surehead and Premium Flat Dutch are the three sorts most widely grown as winter keepers. When buying the plants, *select roots*, not tops! It's the root that feeds the plant! Cabbage requires rich soil, Danish Ballhead prefers a heavy clay. All cabbages need lots of water to do well and should be hoed often and thoroughly. The application of a "complete" fertilizer containing one part muriate of potash to two parts nitrate of soda to three parts of phosphate *will* work wonders. If the head begins to burst, push the plant over to one side; this breaks some of the feeding roots and checks development.

Carrots. Early, but small sorts like French Forcing or Golden Ball will be large enough for use within 45 days. Sow in rows, $\frac{1}{2}$ inch deep, 18 inches between the rows. For winter use, Danvers Half Long and Improved Long Orange are ideal, though Long Orange and sorts of a similar nature require deep, rich soil for best returns. The late sorts should be "thinned" to stand 4 inches apart in row. Dig in fall and store in frostproof cellar in

boxes or barrels, covering top with soil or sand.

Celery. Buy plants and set in rich soil. For use (before Christmas) choose Golden Self Blanching or White Plume. For winter use, Giant Pascal or Winter Queen are standards. Set plants 6 inches apart in row, 3 feet between the rows. Water often and thoroughly. Hill as the plants develop or use Celery blanchers, in which case the rows can be put 2 ft. apart or even closer.

Corn, Sweet. All through the month, early and midseason sorts may be planted in rows 3 inches deep, seeds 4 inches apart in the row, with $2\frac{1}{2}$ feet between the rows. Don't plant corn in long rows, one row at a time, but rather in blocks of 4 or 5 short rows. This will insure perfect pollination and, subsequently, more uniformly well-filled ears. When the plants have grown to be a foot high, thin them out to stand one foot apart in the row and hill slightly. Hoe constantly and hill from time to time.

Cucumbers yield perfect crops from seeds planted in June. Make hills, about a foot across, top of hill about 8 inches above surface, 3 foot of space each way between the hills. A shovelful of manure at bottom of each hill helps greatly. Sow about a dozen seeds in a circle around top of hill. Cover about half inch deep. After the seedlings have made the third pair of leaves, when danger from the striped beetle is over, reduce plants to three to a hill. Don't disturb the roots of those that remain. Fight the beetles with slug shot. One packet will sow a dozen hills.

Kale, a form of cabbage may be treated just like cabbage. Sow now in rows, $2\frac{1}{2}$ feet apart, thin out plants to stand 4 inches apart. Early next month transplant in rows, one foot apart, with 2 or 3 feet between the rows. Dwarf German or Curled Scotch are good keepers and very hardy, lasting well into winter.

Lettuce. It is important to sow the right kinds for summer use. Only midseason butterhead and late crisphead sorts can be attempted now. Sow in rows 2 feet apart. Cover seeds from $\frac{1}{4}$ to $\frac{1}{2}$ inch deep according to condition of the soil— $\frac{1}{2}$ inch deep in very light soil, less in heavy clay. When two weeks old, thin out seedlings to stand 4 inches apart in row. Two weeks later take out every other one and repeat until heads stand 16 inches apart. Hoe frequently, between rows as well as between plants. California Cream Butter and All Seasons should be "ready" for use the first week in August. Iceberg (crisp-heads) forms perfect heads even a week sooner.

Muskmelons. These are profitable only in gardens of fair size, say 100 x 100 ft. because the returns per square foot are small. Plant and treat like cucumbers.

Onions are one of the most responsive crops if you don't begrudge care and work at the critical time, which is their baby stage. There is still time to start White Queen, White Portugal, and Southport White Globe from seeds, though if sets can be bought so much the better. Sow seeds $\frac{1}{2}$ inch deep in rows, a foot to 18 inches apart. Weed carefully every other week and when seedlings are about 4 inches tall, thin to stand 4 inches apart in row.

Peas. Every variety will bear a crop before frost. The trouble is that nearly all June-sown peas mature the crop in August when hot, dry weather cuts down the yield by reducing the number of pods per vine and number of peas per pod. Better wait until later.

Radishes. In general sow summer sorts

only at this time since the early spring kinds (with the exception of Icicle) get hot and pithy over night. In some sections, or in a cool season with irrigation, spring radish will succeed. Sow Long White Vienna, White Delicious or White Strasburg in rows 2 ft. apart, covering seeds $\frac{1}{2}$ inch deep. Thin out seedlings to stand 4 inches apart in row, as soon as they get large enough to be handled. This is very important with this crop, since "spindley" plants require a good deal longer than normal time to produce eatable roots. Radish seeds may be prepared for prompt germination by putting them between wet blotters or wet newspaper over night. Where this is done, $\frac{1}{4}$ inch covering of seeds is ample.

Swiss Chard. A spinach beet producing large leaves, but not bulb roots. A most profitable vegetable for war gardens since it practically provides two dishes from one plant. Cook the leafy part like spinach, the midribs like asparagus. Sow and treat exactly like beets, but, when fully grown, each plant should have at least a foot of space in the row. Twenty feet of row provides an abundance of greens. You can "cut and come again."

Tomatoes. Secure plants. If that is impossible you may still hope to raise a crop before frost by sowing without delay, seeds of Spark's Earliana, Chalk's Early Jewel or June Pink. These will bear fruits in 100 to 110 days after seeds are sown and con-

ditions in June are such as to promote both quick germination and rapid growth. Sow like lettuce and transplant like cabbage. Every "sucker" or branch removed from an old plant, will take root and develop into a self supporting plant almost over night. In an emergency, where neither seeds nor plants are obtainable, ask your neighbor for a few "shoots" when he prunes the latter part of the month. All tomatoes should be reduced to three of the strongest branches, trained to five-foot stakes and pruned regularly. This will stimulate fruit production and also economize space.

Turnips. Sow the late or winter keeping rutabagas or Swedish turnips in rows $\frac{1}{2}$ inch deep, 2 feet between the rows. Thin out seedlings to stand from 4 to 6 inches apart, according to variety. Monarch or Elephant grows very large; American Purple Top needs but 4 inches of space in the row. While the main sowings of turnips for winter use are made in July, it is well to sow the very large growing rutabaga toward middle of June.

Keeping Up Fertility

★ **SAVE** every bit of vegetable matter, weeds, garbage, etc., for the compost heap. Cover with soil and allow to decay. By next year the whole mass will be in fine shape to spread on the garden as a rich dressing. About the only things that won't decay in that time are the ripe stalks of corn, tomatoes, etc., which being woody and ready only at the close of the season require longer time to disintegrate. They may be placed in a separate pile preparatory to the formation of next year's compost heap.

★ **FROM** the day the melon and cucumber plants are set out hoe the ground surrounding them at least once a week. The best hoe for this purpose is the scuffle because when properly handled it will not cut deeper than half an inch to an inch. The scheme is to keep the surface loose and dusty without going near the roots which spread out farther than the vines and only a trifle below the surface. The less they are molested the better.

★ **WHILE** "it's nice to get up in the morning when the sun begins to shine," it's not good for all kinds of plants to be roused out of their night's sleep so early. Melons, cucumbers and beans especially should be left alone until after the dew is off as their vines are somewhat brittle and are likely to suffer from breakage—

to say nothing of the damage spread most seriously while the plants are wet with dew.

★ Now that warm weather is upon us the main point in gardening is to conserve moisture. Unless you have an overhead irrigation system the best plan is to keep the soil constantly loose and open by weekly shallow tillage either with hoe or wheel tools. Such attention while it destroys weeds is not done for weed extermination alone but for the effect it has upon the soil. The loose surface layer acts as a mulch through which the moisture below cannot pass as readily as if the surface were hard and smooth.

★ If you have no other use for lawn clippings, spread them on your strawberry bed to serve as a mulch. They contain no weed seeds, are short and lie snugly up to the plants and when turned under after the bed has borne its crop, make excellent plant food. The new bed will probably do better if kept clean of weeds during the first summer by frequent shallow cultivation or hoeing. Time enough to mulch it after the ground freezes hard in the fall.

★ **ALL** crops that are grown for their leaves—spinach, cabbage, celery, chard, endive, etc., may be lavishly fed with nitrogeous fertilizers. Rotted manure is best to apply prior to the growing season and even during the early part of this when it can be spread without trouble. The next best things are poultry and sheep manure, especially if dry and ground.



There are several makes of wheel hoe. Don't try to push in a steady drive like this



The proper way to use a hand cultivator is to stand still, draw the cultivator toward you, then push it away to arms length, and step forward a step, advancing by short jerks

★ **PLANT LICE** often prove troublesome on cantaloupes, cabbage and some other crops. Generally they have got such a start that little or nothing can be done to save the plants. Therefore, examine the plants from time to time, especially beneath the leaves, to see if they are starting. A spray of black leaf 40 or other standard nicotine insecticide at recommended strength will hold these pests in check. Be sure to have most of the spray hit the under sides of the leaves.

★ **THE STRIPED CUCUMBER BEETLE** on cucumber, melon, squash and their kin is almost impossible to subdue after the plants are left unprotected in the garden. Cover with wire gauze before they get above the surface and until the vines begin to run. Tobacco dust on the hills is thought to be effective but is not fully satisfactory. However, it does no damage as when it decays it adds plant food, particularly potash to the soil.

★ **TURN OVER THE SQUASH** and pumpkin leaves and look for little groups of eggs about the size of a pin head. These will hatch into dirty gray bugs which when full grown are about an inch long. Not only do the adults and the young suck the sap of the plants but they carry infection from plant to plant. The adults are sluggish creatures, especially in the early morning and on cool days, so they may be easily caught. Popping them in kerosene is satisfactory, except to them. They are hard to affect with sprays of any kind. The eggs may be broken or cut off with part of the leaf and burned. In the fall after the vines have been nipped by frost the bugs will move to the squashes. Often hundreds may be killed by knocking them on the ground and tramping on them. A cool day and the early morning when the bugs are somewhat torpid are the best times to do this.

★ **NO, THOSE BIG CATERpillars** on the tomato plants are not likely to do serious damage. There are not enough of them—usually. They are kept in check by their parasites so they rarely become a pest. If they seem to be too numerous for the good of the garden, pick them off and step on them.

★ **UGLY brownish spots** on the bean pods? Anthracnose! It can be kept in check by spraying with bordeaux especially if the spray is directed upward from below. Never mind if the beans become smeared; a few tablespoonfuls of vinegar in the water used for washing will dissolve the smears and a final rinsing with water will remove the last traces of the solution. Not the slightest danger of poisoning! The best preventive of this disease is to avoid doing any work—cultivating, picking or even walking through the patch—while the plants are damp with rain or dew.

★ **IRREGULAR holes** in cabbage leaves? Probably caused by cabbage worms—velvety green caterpillars rather hard to see at first because so nearly the color of the leaves. Arsenate of lead and paris green—one ounce of either to ten gallons of water—sprayed on the plants are the best remedies. No danger

Repelling the Enemies' Assaults

to human beings from eating the cabbage later because the outer leaves are pulled off. Spraying now will destroy worms that would become parents and grandparents of the later broods which make fall cabbage leaves look like poorly made colanders. The caterpillar also attacks cauliflower, brussels sprouts, kale, kohlrabi, etc.

★ **ASPARAGUS BEETLES**—pretty, metallic spotted little fellows about a quarter of an inch long and then slimey greenish slugs—often play havoc in home gardens. Let the useless, inferior, spindley shoots act as decoys for the beetles to lay their eggs upon, then cut and burn them, say a week later to destroy the eggs, leaving a new set of spindley shoots to replace them. This practice kept up for a

and near the edges of gardens bordered by sod. Spray a patch of clover or grass with arsenate of lead—one ounce to ten gallons of water—in the early evening and after cutting it drop in little clumps upon the ground a few days before any plants are set. In the absence of other food the worms will eat this poisoned material and die. After plants are set use poisoned bran near the plants to be protected—a teaspoonful or so to a plant. Paris green at the rate of one ounce to three pounds of bran mixed dry and then moistened with sweetened water till the mass is thoroughly wet but not sloppy, will give satisfactory results.

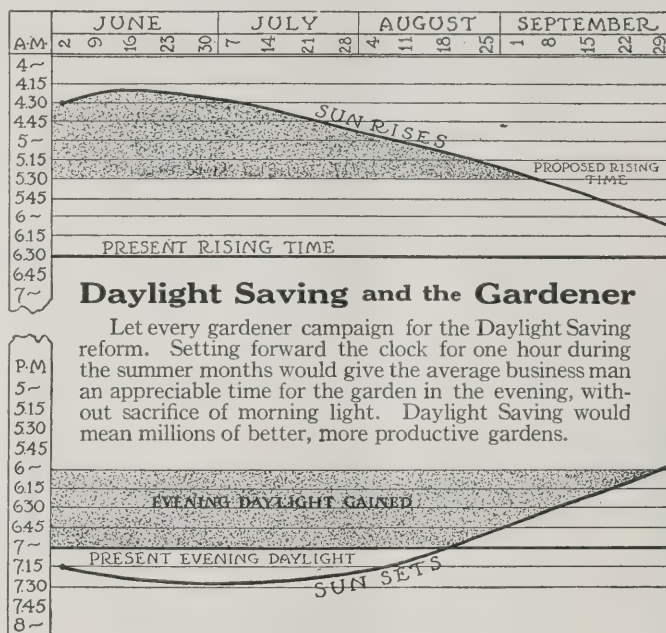
★ **TURNIPS** are troubled with little black beetles that hop away briskly as you approach. You may make things unpleasant for the beetle by spraying with bordeaux (usual formula) or, now that copper sulphate is costly, scatter lime dust on the plants beginning at the windward side so the dust will blow forward. These flea beetles do not seem to be successfully combated with poisons but they don't like lime in any form.

★ **STRAWBERRY** plants look sickly, wilted or not thrifty? Dig down carefully with a stick or a trowel. Aha! A brown-headed white grub, larva of a May beetle or June bug. Nothing to do but kill each individual grub. Prevent repetition by not planting strawberries on newly turned sod.

★ **WELL, WELL!** A potato bug on the egg-plant! Yes, it's sometimes a pest on this crop as well as on potatoes. Spraying with paris green—an ounce to ten gallons—is the best remedy.

★ **IF YOU** find a raspberry, dewberry or blackberry plant with orange-yellow leaves—most conspicuous on the undersides—dig it up and burn it at once. This is orange rust for which no remedy has as yet been discovered. As every diseased plant is a contagion spot it may mean serious loss of adjacent plants due to infection. As soon as the raspberry and blackberry canes have borne fruit, the old canes should be cut out close to the ground and placed upon a bonfire of dry brush and burned immediately. They are almost sure to be diseased or insect laden so the sooner they are destroyed the better. After they have fruited they are not of the slightest use to the balance of the plant. They die any way. Why let them be a menace to the plantation?

★ **WHEN** large numbers of the blossom buds of your strawberries drop off as if nipped, the trouble is weevil. This insect is worst in old beds and on varieties that bear pollen. It is a good plan therefore to allow the strawberry beds to fruit only one year and to have a new bed set out each season, preferably as remote as possible from the older bed. The insects do not migrate rapidly so this method helps to keep them in check. As the pollen bearing kinds are most attacked it is well to plant rather largely of pistillate or female varieties and to rely upon the other kinds almost wholly for pollen and not for fruit.



Daylight Saving and the Gardener

Let every gardener campaign for the Daylight Saving reform. Setting forward the clock for one hour during the summer months would give the average business man an appreciable time for the garden in the evening, without sacrifice of morning light. Daylight Saving would mean millions of better, more productive gardens.

month or six weeks during the cutting season will make the plants fairly free from the pest. After the cutting stops destroy the slugs by knocking the plants with a stick during the heat of the day while the ground is so hot they cannot get back. This work would be play to any boy who likes to rattle a stick on a picket fence as he walks by! Chickens kept confined in the asparagus patch will be helpful. In cases of bad infestation dust with air slaked lime in the early morning while the dew is on the plants.

★ **SOMETIMES CARROTS**, parsnips, celery, fennel, parsley, dill and other related plants are defoliated by green and black banded worms or caterpillars which when touched suddenly exhibit a pair of yellow "horns" that give off a peculiar, offensive odor. Usually they are not numerous enough to cause much concern, so knocking them off and treading upon them will answer; when abundant, spray with paris green or arsenate of lead one ounce to ten gallons of water.

★ **PLANTS** cut off just at the surface of the ground? A cut worm—a dirty gray fellow that hides under a chip or a clod during the day and comes out to feed at night. Cut worms are worst on newly plowed or dug sod

THE patriotic thing now is for each garden owner or worker to do his utmost to increase food production this summer by planting as many vegetables as can be cared for properly. Remember it is better to cultivate a small plot properly than to work across a large area badly. Any surplus of crops that are perishable may be saved by putting up in tins or glass, or by drying. Do not waste anything. Plant the staple crops, such as corn, black eye peas, butter beans, navy beans and late potatoes this month. One can continue the planting of corn, snap beans, and beets until September. It is too late now to plant English garden peas as they are cold weather plants, but begin again the end of August. Canning asparagus and English peas and beets and some of the fruits can be done now. Get recipe from the Agricultural Department, Washington, D. C. Farmers' Bulletin 359 by J. F. Breazeale has been well tested and for many years used by the Girls' Canning Clubs. Get also the Government recipe for drying vegetables and fruits as there is a shortage of glass jars and tins and so much food can be conserved by drying. Even though there might be only enough for one jar it should be immediately canned to prevent waste.

Plant in the open ground during June: mid-season tomatoes, egg plant and peppers; also a little curly endive, which last can be blanched by tying the leaves together with a soft string, as all kinds of lettuce bolt to seed in hot weather. Witloof chicory can be sowed in a row and thinned out later and when

June Work in the South

big plants they should be dug up and put in a trench and treated as one does celery to blanch for winter; first cutting off the tops to two inches from the crown.

Force all "leaf crops" with a bi-weekly application of nitrate of soda, all cabbage in particular. Sow in coldframe Brussels sprouts, cauliflower, winter cabbage, and late tomatoes. Plant the late potatoes. Green Mountain and Peach Blow are proved good varieties. Sweet potatoes can be planted the end of May or first of June.

Keep up a constant cultivation in the garden, stirring the soil to conserve moisture and keep down the weeds. The orchard and vineyard should be sprayed with bordeaux-arsenate of lead up to July 1st, except of course on trees that bear in June, i. e., early apples, peaches, and apricots. Thin out superfluous fruit so that those that are left will be finer specimens. As soon as the grapes turn pink, the small uneven bunches could be gathered and used for jelly making and this thinning out will also be an advantage to the remaining bunches. The ends of the grape vines should be cut out to let in air and sunlight. The best bunches could be bagged to prevent loss by wasps and to make a more even bunch.

Keep a vigilant eye on all vegetables and fruit this month for there are so many diseases and insects to combat. Bordeaux mixture is used for blight and fungous diseases; and that,

with arsenate of lead added at the rate of 1½ lbs. to 50 gallons of bordeaux, will destroy codling moth, curculio, currant worm, cabbage and potato worms, etc.

Slug shot sprinkled on plants in the early morning when they are covered with dew will eradicate the worm and the leaves should be thoroughly covered with liquid poison—arsenate of lead is best.

Early corn is subject to smut and corn worms. Spray it at silking time with a dry spray, 20 per cent. arsenate of lead and 30 per cent. flour of sulphur blown right into the tip end of the ear.

The latter part of the month, put out celery plants four inches apart, in a trench, two feet deep, with six inches of manure in bottom and four inches of good soil on top.

Early blooming shrubs should be trimmed now, such as Forsythia, Spiraeas, and Lilacs. Sow Aster seed now with a few peppers and when transplanted into the open ground plant them together. The aster beetle prefers the pepper plant and thus the Asters will be saved, and planted this late they will bloom in September. Trim off the weak shoots of the Dahlias and keep the soil well worked about them. A good potato fertilizer is the best for Dahlias, but one too rich in nitrogen will make the plants go to leaf. The lateral branches of Chrysanthemums should be cut off and an occasional watering with manure water is beneficial. The black aphid to which they are subject can be eradicated by a heavy stream of water from the hose.

Virginia.

J. M. PATTERSON.

THE efficient gardener who is planning for a succession of vegetable crops every month of the year must now sow seeds of carrot, cauliflower, popcorn, peas, and radishes.

The standard carrot is Danvers Half Long. However, an unusually attractive little carrot is the Early French. This is almost round and resembles the French Breakfast radish in form. It grows to be about two inches in diameter and is at its best just before reaching the two-inch size. If you have a hotbed, sow a few seeds of the Snowball cauliflower. These seeds are expensive and it is much better when working for a succession of crops to sow only a small part of the packet at one sowing.

Those of us who hitherto have bought popcorn from the street vender rather than make it in our own homes will do well this year to grow some of the popcorn in the garden. The White Rice is an unusually good variety and may be planted now. Treat it exactly like sweet corn.

Big Boston is the standard lettuce. But in the southern part of the state the Los Angeles variety is much grown. It is the favorite on the Los Angeles market and is very good indeed for home use. In the northern part of the state, especially around San Francisco, the California Cream Butter variety is rapidly gaining in popularity. It is very prolific and unusually crisp.

Keep yourself busy at odd times scratching around the different garden crops, and drawing a little soil around the base of the different plants to protect them during the hot days. Pole beans and peas that were planted early will now need supports. If poles are at hand they should be set up now. A very good way to provide a support, however, and one that is entirely satisfactory, is to set stakes or posts

Planting on the Coast

at either end of the row and stretch a strip of poultry wire between them.

If you have not planted for a succession of vegetables but have a space in which some may be sown for fall use, make your choice from the following: Kentucky Wonder or Old Homestead pole beans; extra Early Refugee bush beans; Improved Egyptian beets; Early Green or White Spine cucumbers; Long-leaved Dandelion; Rich Green Curled endive; Kohlrabi; Rockyford muskmelon; Rich Netted Cantelope or Burrell's muskmelon; Peerless or Ice Cream watermelon; Spinach; Okra; Parsley; Mammoth pumpkin; Hubbard squash; Yellow Crook-neck summer squash; and Purple Top White Globe turnip.

Plants of cabbage, eggplants, and sweet potatoes may be purchased from the market gardens or from the grocery stores and should be set out this month unless the supply has already been secured. Sweet potatoes do not thrive well on heavy soil and should not be attempted unless very sandy loam is available.

GREENHOUSE TASKS THAT NEED ATTENTION

If you are growing Chrysanthemums in the greenhouse for developing unusually large blossoms for cutting they should be examined now to see if they are ready for repotting. It is impossible to give a date when they should be transferred. The way to determine when they are ready is to examine the roots. Turn the pot upside down and jar it enough to loosen the ball of earth around the roots. Carefully lift off the pot and if the roots have formed a network around the inside of the pot the plants are ready for repotting.

Chrysanthemums require a large amount of water but must have the pots well drained so that the soil does not become soggy. After they have been repotted, put them close together on a bench that has been covered with cinders or ashes in a shady place in the greenhouse, or better still, in a sheltered spot out-of-doors. If the largest blooms are to be had, keep the side shoots pinched back and allow one main flower stalk to develop to its best.

At this time of year the air is usually rather dry and the greenhouse will need water applied to the walks and under the benches. Open the ventilators early every morning and close them early in the evening. Ferns and all ornamental leaved plants not in bloom should be sprinkled lightly with tepid water. Plants that are beginning to show buds should receive weak manure water or a light top dressing once every two weeks.

If you desire a succession of Calceolaria blossoms, a few of the seeds should be sown in shallow pots or pans during June. After the seeds have been sown on a mellow soil cover them by sprinkling silver sand over them. They should be kept in a cool frame facing the north and the sun should not be allowed to strike them until they are well under way. They require a light sprinkling twice a day, morning and evening.

For winter decorations, nothing is quite so well liked as Coleus. If a good supply is wanted, make cuttings now and start in small pots.

***In the articles devoted to particular localities and special subjects the reader will often find directions that are of general application—e. g. hints on canning, spraying, feeding, etc. Therefore it will be well to look through every line of the Patriotic Garden Department because repetition has been avoided to save space.*

Making the Garden Safe for the Summer F. F. ROCKWELL

New York

WHAT MODERN IRRIGATION MEANS AND HOW TO SELECT A SYSTEM THAT WILL MEET YOUR OWN REQUIREMENTS AND GIVE SATISFACTION

YOU will not have "done your bit" to the fullest extent this year, unless you leave no stone unturned to make your garden yield to its full capacity. It is by no means mere sentiment to say that your best efforts in that direction involve more than the personal gain you may make by so doing, and will contribute concretely, even if only on a small scale, to the national welfare and the national cause.

WHAT WATER MEANS

What is the most important factor in assuring the full success of the garden you have planted this year—perhaps for the first time—to help feed yourself, and thereby make it possible for your brother, the farmer, to feed the



The overhead system of irrigation is a great convenience allowing for traffic underneath. The direction of the spray is controlled by turning the entire line by the lever handle

man at the front? Whether you have studied the scientific side of gardening enough to know it or not, it is WATER. Water is to the ranks of vegetables in your garden, what food is to the ranks of men in the trenches. Without it they perish, no matter how well they may be established otherwise. Without water they perish, no matter how well planned, or thoroughly fertilized, or carefully tended, your garden may have been; yet when the long hot days come, without abundant water it cannot make progress, nor yield the results promised by the encouraging opening of the "spring drive."

An adequate system for supplying water to your garden *when-ever* it needs it, and as much as it needs, is the best garden investment you can make. Commercial growers, with soil as rich as it could possibly be made, and using the best methods of culture, have found that with irrigation they can, as a general thing, *double* their yields! To the home gardener, often working under some

disadvantage in the way of soil, etc., it has meant even more; it has meant not only much larger crops, but the assurance of crops where otherwise there would have been failure. In practically every garden, even in the few seasons when we have no real "drouth," irrigation will be needed badly not once, but many times, between June first and October first. And whenever it is needed, and you can give it, it will help the growth of every vegetable in your garden.

Not only that, but keeping crops in vigorous growth, materially protects them against injury from insects and disease. Furthermore, your early crops, under irrigation, will mature on time, and your succession and late crops, which should supply you with materials for canning, and for winter use, can be planted the day the ground is ready, and be had up above ground and beginning vigorous growth under the most favorable circumstances, in a few days more, if you can command the rain over your own garden.

In short, at from whatever angle you look at it, there is every reason for providing your garden with irrigation; and all these reasons are of double strength at this particular time, when every ounce of food that can be produced will be needed. Keeping your garden supplied with water this year will be as patriotic an investment as buying a war bond!

"IRRIGATION" FOR THE HOME PLOT

The next question is, *how* to furnish irrigation for your garden? You may be somewhat confused by the term "irrigation" itself; not quite clear as to what to do, or just how to set about it; or what it is going to cost.

There are two points to be settled upon right now, at the outset:

The first is a conviction that modern irrigation for the home garden is not a complicated thing. Don't feel for a minute that it is "beyond" you, because you are not an expert gardener. It is just as simple as using a watering can—and infinitely less work! There are no complicated rules which must be followed in using it; the few simple suggestions given later in this article—most of which common sense would have dictated to you anyway—are sufficient to set you right on that point.

Secondly, an irrigation system for your home garden won't cost a fortune. In fact, considering that irrigation supplies are a new thing, and as yet not in universal demand, the prices asked by most of the manufacturers are very moderate. You can get an outfit that, with such hose as you may have on hand, to convey the water from the house to the garden—if you have not an outlet near the garden—will enable you to supply artificial rain for a small garden for five to ten dollars. That is first cost and practically the only cost. The expense of operation is nothing but the cost of the water; and with care the outfit will last indefinitely, as there is nothing to wear out. Two weeks of hot dry weather, even in a very moderate sized garden, often does more than ten dollars' worth of injury.

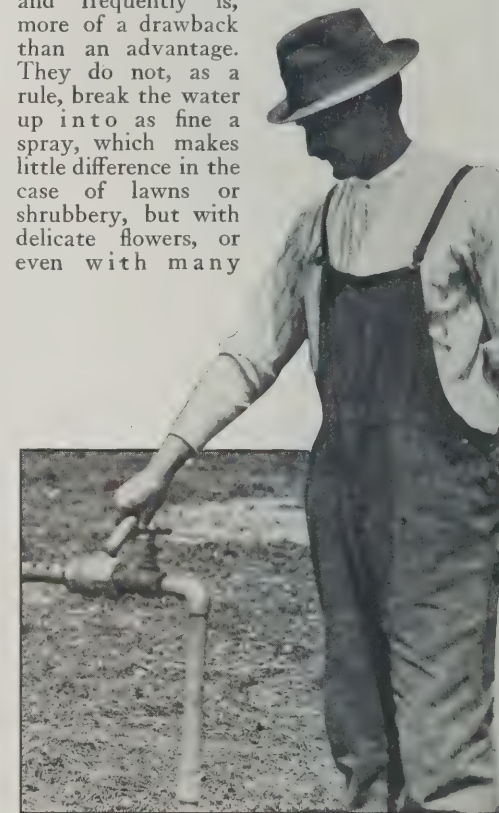
Now as to the details of the equipment, and how to install it. In the first place, one

should have a clear idea of the general principle of "spray" irrigation, as this type is called. It may be described most simply as "artificial rain." The water is distributed, under considerable pressure, through "nozzles" placed in a row along a pipe, or by stationery or revolving "sprinklers." The water, thrown quite a distance by the nozzle or sprinkler, is broken up into small drops by the resistance of the air, and falls in a spray. The fineness of the spray is an important matter. Big drops of water tend to pack the soil, and unless it is very light, to wet it so rapidly that it will get muddy on the surface, or even run off, before it has wet clear down to the roots. It also spatters mud over the leaves, like a driving rain, which is objectionable in the case of many vegetables and most flowers.

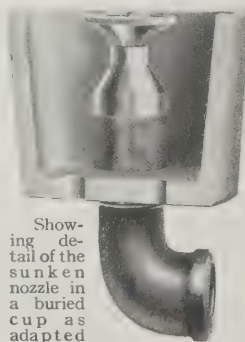
To get the best results from an irrigation system, you should make yourself sufficiently familiar with the various types on the market to choose intelligently *according to your own watering problems*. You may have a vegetable garden alone, or only flower beds, or lawns and shrubbery, or any of many combinations, to supply water to. Your soil may be very light and sandy, making it possible to apply the water very rapidly without flooding; or it may be of such a character that the water must be applied very slowly, to soak in as it falls. You may have a good water pressure, but not flow enough for very rapid irrigation; or a good flow, but low pressure. All these things must be considered.

TYPES OF APPLIANCE

Here are some of the points of distinction between the various types: The sprinkler systems apply the water more rapidly than the nozzle-line systems. But this may be, and frequently is, more of a drawback than an advantage. They do not, as a rule, break the water up into as fine a spray, which makes little difference in the case of lawns or shrubbery, but with delicate flowers, or even with many



When hand cultivation is done, as in a small garden, the irrigation pipes may be kept low and the outfit is not then obtrusive



Showing detail of the sunken nozzle in a buried cup as adapted for lawn use

vegetables, is a disadvantage. All the sprinkler systems, applying the water over a series of circular areas, distribute the water in extra heavy doses where the "circles" overlap; but this is not serious if one takes the trouble to irrigate when there is a little wind blowing, as can usually be done. More serious, in most cases, is the fact that the water is not evenly distributed over the whole of the circular area covered by each sprinkler. In many cases a large percentage of the water falls in a comparatively narrow ring; therefore, if you plan to use a sprinkler system, be sure to select sprinklers that have as even a throw as can be got. The nozzle line system is not quite so automatic in its operation, but all the attention needed is to turn the line occasionally by means of the handle at the end of the line, so that the water will fall in a different place; five or six shifts, turning the line a few degrees at a time, are required to water all the ground covered, from one side to the other. It is possible to get an automatic turning device which will keep the line turning, but this of course is an additional expense. The nozzles are more likely to clog up than are the sprinklers, and though they are easily freed of ordinary obstructions, it is necessary to keep a little closer watch of them. One important advantage the nozzle line systems have is, that where the pipes run the same way as the rows of vegetables, as they usually do, a few rows at a time can be wet down as wanted, or given an extra amount of water; this is very convenient in weeding, thinning, transplanting, and sowing succession crops.

The details of the equipment for the two systems—nozzle-line, and sprinkler, are in general, as follows.

THE NOZZLE LINE

For the nozzle line system there should be a line of pipe (the hose will do) out to the garden, 1 inch, or even $\frac{3}{4}$ in. will answer for a moderate sized garden. A riser, extending up 3 to 6 feet, is placed at the point where the irrigation line is to start, and on top of this a valve and an elbow. Next comes a special fitting known as a "turning union." This is so constructed that it allows the pipe to be revolved, by means of a short handle placed in it for the purpose, without leaking at the joint. It also contains a strainer. A cap on the end of the handle permits flushing out this union without taking it apart. At intervals of three to four feet along the line, small nozzles are screwed into the pipe,

in a perfectly straight line. For a small outfit, you can buy the pipe, with the nozzles already inserted; for a larger installation, there is a special drilling machine, with lever attachment, which makes it possible to get the holes in a perfectly straight line. These nozzles throw the water to a distance of twenty to twenty-five feet, so that each line is capable of covering a strip of ground forty to fifty feet wide. The line of pipe has supports, every fifteen to twenty feet, in the form of wood or iron pipe posts. Rollers to fit either kind of post are supplied, but are not really necessary for runs of pipe under 200 feet or so.

THE SPRINKLER TYPE

For the sprinkler system, all the piping is put underground, except the uprights or risers, which support the sprinklers. These are



Note these rows of peas, both sown the same day; that on the right was given shelter by a "protector" or "forcer" and is ahead of the other

placed at intervals of 30 to 50 feet along the lines, according to water pressure and capacity. A valve at the beginning of each line controls all the sprinklers on that line; or one can have a valve for each sprinkler. In either case, this system is more expensive to install than the nozzle line type. The water is applied more rapidly, and therefore larger pipes are necessary to carry it. For lawns, shrubbery, etc., the sprinkler is often placed in an iron box or cup, set flush with the ground, where it is out of sight, and out of the way when not in use, so that the lawn mower, roller, etc., may pass over it without injury.

While the above outlines in a general way the construction of these two types of irrigation systems, to inform yourself more fully about the details of construction and equipment, and get data on which you can readily figure out what your own outfit will need to

include, consult the catalogues of the several companies now making irrigation equipment. I have taken pains in the paragraphs above to tell you some of the things these interesting catalogues *don't* tell, but there is a lot more that I haven't had room for that you will find well worth your trouble in reading, and that will help you in making an intelligent selection.

USING WATER EFFICIENTLY

And now a few words as to using whatever system you may install. First of all, remember that your irrigation system is not a play-thing, and even though you may like "to see it running," always keep in mind that it is better to give an occasional *thorough soaking*, than frequent light sprinklings. Usually a half inch to an inch of water should be given in dry weather. You can gauge the amount by the "time table" given with whatever system you use—so many hours, at such and such a pressure of water= $\frac{1}{2}$ inch, etc. The "pressure" of city supply can be obtained from the proper authorities; in a self-contained plant it must be figured according to circumstances.

Usually it is best to water rather late in the afternoon. To water in the bright sunshine wastes water, as much of it is lost by evaporation before it has time to sink down to the plant roots.

After watering, just as soon as the surface of the soil becomes dry enough to work, go over it with a wheel-hoe and reestablish the dust mulch, to aerate the soil, and save all you can of the water just applied for the use of the plants. After a light rain, which has not soaked down far, but has spoiled the dust mulch it often pays to finish the job with a watering somewhat lighter than usual, before working the soil to reestablish the mulch again. A light watering is also often a great help just before weeding or thinning, to moisten and loosen up the hard dry soil.

In conclusion, bear in mind that *water* will be one of the very few things that won't be costing you "war-prices" this summer, and that every gallon of water you can add to your garden in dry weather will be worth so much in actual dollars and cents to you in the increased weight of vegetables it is sure to make. It will not only save worry and crops, but will make your fertilizer go about twice as far as it would otherwise. You can't go wrong on taking this step to make your garden sure and safe so far as dry weather, its greatest enemy, is concerned. Have a little rain-plant of your own this summer!



Typical installation sprinkler type which distributes water in circles from focal centres. A minimum of permanent pipe is above ground



Typifying the overhead nozzle line system in which the distributing pipes are above ground, and can be turned their whole length in desired directions

Transplanting Vegetables to Economize on Space

H. W. DOYLE, ^{Kan-}_{sas}

IT OFTEN IMPROVES THE PLANT, TOO—THE RIGHT TOOLS TO USE AND HOW TO GO TO WORK

W E GARDENERS, if we are to get the most out of our gardens, must do considerable transplanting and indeed many plants are greatly benefited by the practice. Tomatoes, cabbages and celery are notable examples. The roots, being broken, have a tendency to branch, and thus a more ramified feeding system is acquired. Another advantage is that each individual plant is given more space in which to develop. Plants are often transplanted two, three or even more times in order to further increase their root systems; the more often they are transplanted the better they seem to stand the operation. Not only does it make stocky and sturdy plants, but it often hastens fruiting, and it has been known to have been the means of avoiding certain diseases. The first essential in successful transplanting is to have strong, sturdy plants; the second a favorable environment in which to set them.

YOUNG PLANTS FROM HOTBEDS

Plants started on small areas, in hotbeds, greenhouses, or protected outdoor beds, are more easily cared for, especially when they are of a delicate nature or during a time when weather conditions are unfavorable. The space where they are to be planted may not be available, either because occupied by another crop or because of the earliness of the season. Hence the value of concentrated culture and the necessity of transplanting.

Where plants are transplanted two or more times before setting in the field, the operation is known as "pricking out." This is begun by most growers soon after about three true leaves have formed—say at three weeks of age. It should not be delayed long enough to allow the plants to become at all spindly. They are pricked out from one and one-half to six inches apart—three inches is probably the most common distance employed. Weak plants are discarded.

— Coldframes, spent hotbeds, and sometimes sheltered and specially prepared outside beds are used to set them in. Often they are pricked into flats and sometimes separately in paper pots or other receptacles which are

placed in hotbeds or coldframes. If set in flats a one-inch layer of well-rotted manure in the bottom will help in removing the plants with a large bunch of dirt about the roots. Rich soil and careful attention to watering, ventilation and weather conditions are necessary to success.

USING OUTSIDE BEDS

Outside beds should be located in well-drained places, convenient to water. They may be about three feet wide and of any desired length. It is well for them to stand an inch or two above the general level of the surrounding ground. The soil should be carefully prepared and of practically the same constituency as that used in the hotbed or greenhouse. Of course, with outside beds, the grower runs a greater risk of inclement weather. The plants are hard to protect in case of low temperature or hard driving and cold rains.

Lath screens are valuable adjuncts to outside beds. They are so made as to give partial shade, by the laths being spaced as far apart as they are wide. Thus no part of the bed is shaded all the time. While the plants are newly set the screens may be left on during the entire day. As the plants grow older they may be taken off for short intervals, gradually increasing the time, until finally, to harden the plants against the sun, they should be dispensed with altogether.

TOOLS THAT HELP

Various devices are used in pricking out. Some people use small dibbles, making holes and setting in the same manner as in the open. Others use transplanting boards, having $\frac{1}{2}$ inch holes through them in check rows, as far apart as it is intended to set the plants. A special dibble is made to fit these holes. The board is held firmly in place over a flat and the dibble run through each hole into the soil. The board is then removed, leaving holes at regular intervals, which, being uniform, economize in space and make the transplanting easier. Holding a bunch of plants in one hand, with the other hand drop a plant in each hole, beginning at one side and leaning the plants away from the holes yet to be filled. When each hole is filled the plants may be firmed in with the fingers.

Another contrivance for making holes is known as a "spotting board." Wooden pegs or pins about three inches in length and $\frac{3}{4}$ inch in diameter at the base, tapering to a point, are fastened and project from one side of a board, the distance apart the plants are to be set. A "spotting board" should have narrow projections from the side at each end, carrying single pegs. These single pegs are placed in the end holes of the last row made and serve to guide the "spotting board" to the proper distance between the first row of pegs and the last row of holes. The board is pressed firmly down, pushing the pegs into the soil, and carefully removed. One can stand on the board while dropping and firming the plants in one set of holes and be at the same time forming another set.

WHERE THE WEATHER'S RIGHT

Humid regions and weather conditions are favorable to transplanting in the open. A fine time to set plants is just before a rain, especially if cloudy weather follows. The most

unfavorable weather conditions are bright sun combined with cold wind, cold storms of drizzling rain, or frosty nights. Still warm air is desirable—whether the day is sunny or not is of less importance. During drouthy weather the transplanting may be done in late afternoon or evening in order that the plants may have the night in which to recuperate.

The soil is a very important factor in successful transplanting. It must be in such a condition of perfect tilth that fine particles may be firmly compacted about the tiny rootlets of the plants. Therefore, good judgment must be exercised in plowing. Thorough harrowing, rolling and dragging must be given, until the soil is in a fine mellow condition. Newly turned land, being more moist, enables the plants to more quickly secure a foothold. Moist, not wet, soil is to be desired. It should not be so saturated with water as to be soggy and muddy.

Ease of cultivation and successful management require straight rows and uniform dis-



Transplanting develops a good root system. Seed sown same day; plant on right was not transplanted. The difference is plain.



Use a transplanting trowel or a dibber thrust alongside the plant to firm the earth about the roots.

tances between rows. A marker is, therefore, a very useful implement. The one generally used consists of a long handle and a cross piece at one end, in which are fastened the teeth that do the marking. It is very simple, and may be easily made by anyone who can handle a hammer and a saw. In using a marker, stretch a line at one side of the area to be planted, and with a side tooth of the marker barely touching it, walk backward, marking the rows.

There is a certain time when plants are in the best condition for setting in the garden, which does not extend beyond a few days. It is hardly possible to describe this condition, other than to say it is when they are as large as they can be without crowding and are in a state to best stand the shock of removal. Experience teaches one to judge this time. They can sometimes be held back by exposure, scant watering or clipping the leaves.

Cooler plants, like cabbage, can stand lower temperatures, and are preferably planted in cooler weather, and generally several weeks earlier than such warm plants as tomatoes and eggplants. However, different varieties of either the cool or warm kinds are naturally

adapted, or may be hardened by proper methods, to greater resistance of either cold or heat.

Transplanting begins days and weeks before the plants are moved. I refer to the care and treatment before the operation. Those that are expected to resist cold should be hardened to cold by frequent and ever increased ventilation, until they have acquired sufficient powers of resistance to permit their removal to the open without check. Plants that are expected to resist drouth must be hardened to drouth by withholding water. Some plants are made short

and thick-set by shearing the tops while small. A few hours before transplanting the beds should receive a thorough wetting. The plant cells will then absorb a large supply of water and food, which will help them withstand the shock of removal. The wetting also assists in retaining soil particles about the roots.

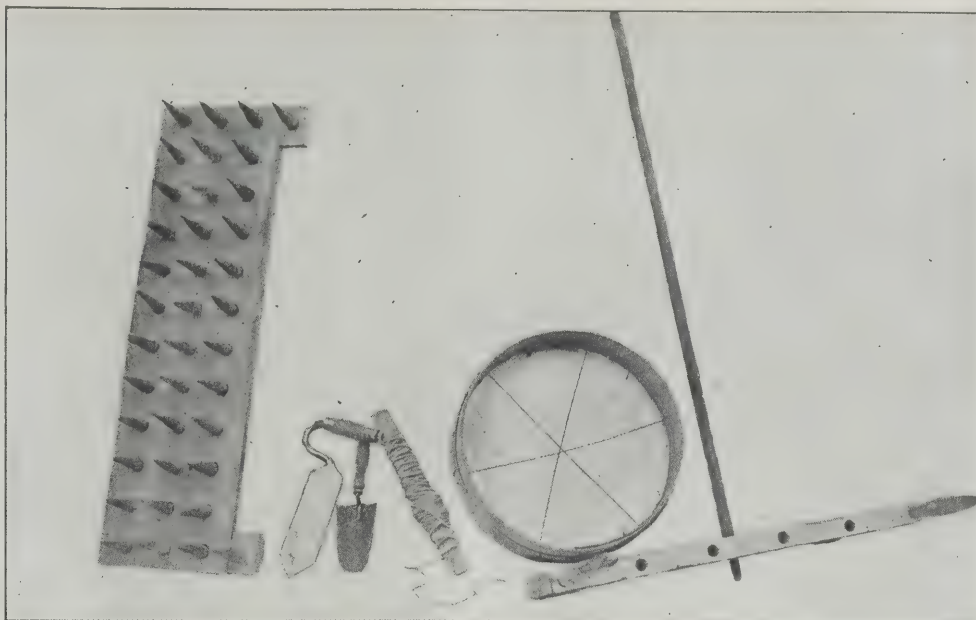
Plants obtain moisture and food materials from the soil through tiny rootlets and root hairs. These are very fragile and delicate structures. In transplanting, no more moisture or food can be taken into the plant until it has become reestablished in its new position, and new root hairs have formed. Those plants having larger root systems and greater powers to make roots do not suffer so much as the weaker ones. The danger of severe check, and often death, can be readily seen. If a plant has not become reestablished within forty-eight hours it will seldom be of much value, as the shock has been too severe.

Plants roughly grasped in bunches and rudely pulled have to fight against great odds when set in the open. The tiny feeding roots and root hairs are torn from the plant and remain in the soil, while the stems are bruised or broken. It pays to spend more time to "lift" the plants carefully, retaining as much soil about the roots as possible. It is well to run a flat shovel far enough underneath the plants as not to injure the roots, and then lift the section—plants, soil and all—from the bed. They may then be carefully separated with a minimum of injury. One can hardly be too careful about retaining these rootlets and hair roots. Failure is very likely to result from hurried or careless work at this stage of the game.

Where plants have been transplanted into flats it is quite easy to remove them with little disturbance and with a liberal quantity of soil about the roots. Cut through the soil and manure so as to divide it into little blocks each containing a plant. Place the flat on its side and jar it on the ground, or tap it on the bottom, and it will be easy to remove the cubes of dirt.

HANDLING THE YOUNG PLANTS

There are various methods of treating plants after removal from the beds and before setting in the garden. Sometimes, when they are quite large, it is customary to remove about one-third of the foliage to prevent too



These tools will help in transplanting. From left to right: spotting board, dibble, trowel, garden line, sieve and marker

much evaporation after setting. When the weather is quite dry it is the custom of many to "puddle" the roots. This is done by digging a small, saucer-shaped hole in the ground, pouring it full of water, and with a hoe mixing a batter to the consistency of thick cream. The plants are taken in small bunches, the roots spread out and dipped in the batter. They should be planted at once. Another plan is to thoroughly sprinkle or wet the entire plant, roots and top.

While plants are out of the ground the direct rays of the sun should not be allowed to shine on them any more than can be helped. It is also well to protect them from drying winds. They may be transported from the beds to the garden in broad, flat pans, covered with a newspaper.

As a rule plants should be set a trifle deeper than they stood in the seed bed. If they are a little large for transplanting, leggy or

spindly they may be set proportionately deeper. Never set so deep as to cover the crown or heart. The soil must be tightly pressed about the roots. When a plant is set it should be firm enough in the ground to prevent its being pulled up by grasping the leaves. Take hold by a leaf and pull steadily—if the plant is firm enough the leaf will part from the plant.

When set by hand either a trowel or a dibble is generally used. I prefer a dibble where a large number of plants are to be set. This implement is held in one hand and thrust into the ground with a peculiar

sidewise motion. When withdrawn it leaves a hole, in which a plant is inserted to the proper depth by the other hand. A second thrust is made about two inches to one side and the dirt pressed firmly against the plant. The resultant hole made from the second thrust must be filled before passing on. A light tap of the dibble should be sufficient. It is more convenient to have some one drop the plants at the proper intervals on the row ahead of the dibbler. The dropper should not get very far ahead because the plants quickly dry out and wilt. With a trowel, dig a hole, insert the plant, and firm the dirt about it with the fingers.

A small quantity of water placed about each plant while setting is often of great benefit especially during very dry weather. A good way is to make the holes for, say, one row. Then go along with a bucket of water and a dipper and pour a dipperful of water in each hole. By the time the last hole has been watered the water in the first hole will have seeped away sufficiently for one to set the plants in the usual way. After they are firmed in draw dry dirt, or rather dust, around each plant and maintain this dirt mulch to prevent evaporation.

It is sometimes customary to shade the plants with shingles, paper bags and other specially constructed contrivances for this purpose. This is not usually necessary, though, if proper methods have been followed and the plants are robust. However, if they are very extensively covered it is well to uncover them during the night so that they may get a little air.

Melons, cucumbers and plants of like nature, do not transplant readily because of their less extensive root system and an aversion to growing a new one. They may be transplanted, however, by a little extra care, with an advantage, though, only as to earliness. Sow the seeds of such in a separate receptacle, as a paper pot, berry box, bottomless tin can, or in an upturned piece of sod. Place these in the hotbed or cold frame and when the propitious time arrives, move bodily to the spot where it is intended to set the plant. A hole is dug, the pot cut away, and the bunch of soil containing the growing plant may be then set in the hole, and firmed in place. In this way, if handled carefully, the plant, with its delicate roots, is hardly disturbed.



A tomato plant all ready to set out. This is in ideal condition and will "never know it was moved"



Most fruit trees "set" more of a crop than they ought to be allowed to mature. June "thinning" takes care of this and actually results in a better harvest of finer specimens

June Thinning for Later Winning J. R. MATTERN

REDUCING THE PRESENT SET TO ENSURE LARGER SPECIMENS AND TO CONSERVE THE STRENGTH OF THE TREE

ALONG in June, when the apples are as big as hickory nuts and peaches are as big as lima beans or larger, you ought to take off the trees all damaged fruit and all surplus that the trees should not mature. Apples, quinces and pears should not grow closer than six to ten inches of each other. Peaches should be no nearer than four to six inches. Separate the fruits by a distance equal to about three times their diameter when ripe. This applies to cherries, plums and practically all other fruit. If they are closer than this the fruits will not develop to the size and color they ought to, but when thinned to this distance the trees will bear the *maximum quality* of fruit and at the same time *will yield the maximum quantity*. Don't forget to take off the inferior bunches of grapes. Always use a pair of sharp shears or scissors for the work. If you pull off the fruits you will injure next year's fruit buds. Note that fall bearing strawberries must have their blossoms clipped during May, June and July if they are to yield fully later on.

The removal of blossoms from your fruit trees and plants sometimes is advisable, but it is not nearly so vital as some authorities would have us believe. I know that fruit trees often form their bearing habits to a certain extent while they are young. If you make them bear when they are four and five years old (apple, pear, cherry etc.) they will continue to bear regularly. If they do not

bear when they are of this age they may bear lightly all their lives. So if your four-year apple and pear trees produce a good bloom, let it remain on or cut away only part of it. It will do no four-year tree any harm to mature from twenty to forty apples, particularly if it is making vigorous growth. Peach trees should yield a good heavy crop when they are three years old, and three-year cherry trees should have some fruits. Take off some of the blossoms of these young trees, but not all.

PLANS FOR IRRIGATION

In your garden you can do many things that are impracticable in a big orchard, and to water your plants systematically in very dry weather is one of them. Often when it does not rain for a long period during May and June your fruit garden will get very thirsty in spite of all your efforts at moisture conservation. The simplest means you have of irrigating your garden is to use the ordinary hose. As an extension of this make shallow ditches four feet from the trees and plants, and run water down these twice a week for a few hours.

Other ways of accomplishing the watering are to have a system of pipes six to eight feet in the air and punctured with needle holes. Or the pipes may be within a foot of the ground. Twenty or thirty dollars will equip a quarter acre garden with such pipes. They produce a very effective irrigation system. Another good way is to plan the irrigation

when you plan your underdrains, and lay the tile so that you can close up the mouth of your drains and then run them full of water. This will soak the subsoil full of moisture whenever you want it to be wet.

MAKING GOOD OUT OF BAD

Should you have wrong varieties planted in your fruit garden you easily can change the trees that you have to the kind that you would like to have by budding. Summer budding is a much superior method to grafting, for your garden purposes. Get the budding wood from bearing trees if possible, an hour or two before you want to use it. You can get it several days before, however, if you keep it on ice till you do the budding. Insert a dozen or two buds in the top of each tree, at proper points. If you tie the buds with red yarn you can find them again easily. Do the necessary pruning and trimming around them the next summer. Budding also is a good way of providing the necessary cross pollination if you do not have it. Bud one or two limbs in each half dozen trees with the proper different varieties.

When trees persist in leaning the wrong way, set a stake and tie the tree back into proper position with a strip of cloth. In May or June you will want to make trellises for your grapes, blackberries and dewberries, or to tie them up to the fence. Be sure that the label wires are all off your trees and plants. If you have planted an extensive garden, and

do not have the varieties staked and marked, make a plan of your garden on paper, showing the location of each tree or group of smaller plants and indicate the varieties and age.

Individual tree labels also are valuable. Make them out of strips of zinc, three quarters of an inch wide at one end by one quarter wide at the other end, and eight inches long. Twist the narrow end loosely around a small limb. Before you put them on the trees immerse them in vinegar for a few hours until they are corroded, after which an ordinary

lead pencil mark will stay on them for years. Don't forget that bees help greatly to pollinize or fertilize the blossoms. If no one else keeps bees in your neighborhood, get a hive of them yourself.

All this care which I have suggested sounds like a whole lot of work. It is work, in one way. But in another way it is not. It is the kind of work that you will drop your amusements for, and that will absorb and interest you intensely till long after dark on many a long summer evening. All the fun

and enjoyment in a home fruit garden does not come in harvest time and the winter. After you have watched your trees and plants from week to week for a little while, you will see that this little tree is growing the way you told him to, and that little plant is throwing out branches just as you directed her to. It will give you more genuine satisfaction to see the evolution of the leaves and the buds and the blossoms and the branches and the fruit than you will get from many of the bigger things of life. But maybe I'm mistaken.

What's Worth While in Snapdragons E. I. FARRINGTON Massachusetts

NOTING SOME RECENT DEVELOPMENTS IN THIS POPULAR ALL-AROUND FLOWER FOR GARDEN AND GREENHOUSE

SNAPDRAGONS were never so popular as now. For many years they have had a place in the garden of the amateur, but it is only of recent years that they have been found in greenhouses. During the last two or three seasons large numbers were grown by commercial florists and although they did not sell as well as had been hoped, it was easy to see that buyers were beginning to appreciate them as cut flowers.

Naturally enough considerable hybridizing has been done by growers who have not been wholly satisfied with the varieties at hand, and as a result several greatly improved sorts are now in cultivation, some of them being valued principally for their winter flowering qualities. Virginia, Nelrose, Ramsburg's Silver Pink, Buxton's Killarney Pink, Firebrand, Phelps' White, Huebner's Yellow and Black Prince are among the best of the forcing varieties.

The favorite color among those who purchase Snapdragons is pink. Nearly all pink varieties have yellow throats, but Virginia is an exception. It is pure pink all through. It is quickly forced, too, and flowers in abundance may be cut in January. This variety is propagated wholly by cuttings. Nelrose is a very excellent pink variety, one of the best, in fact, which has yet been shown. Mr. F. W. Fletcher of Auburndale, Mass., who originated Nelrose, intended it wholly for winter flowering, but experience has shown that it is also well adapted to outdoor bedding, so that it is classed as an everblooming sort. Several medals have been awarded to this introduction.

Huebner's Winterflowering Snapdragons are very new but promise well. Whether they will actually flower so freely in cold weather as to crowd out most of the others remains to be seen. There are three varieties, yellow, pink and white. All are strong growing and have long, thickly set spikes with long stems. The yellow is especially fine.

Ramsburg's Silver Pink is much grown but has one fault—it often comes with a soft tip. Buxton's Pink is a very satisfactory grower but has a tendency to fade out quickly. Probably Phelps' White is the best of its color for winter forcing. W. S. Phelps of Marlboro, Mass., whose

name it bears, is said to have come upon the original plant by accident, but recognized its quality and propagated from it freely.

All the *Antirrhinums* so far discussed may be grown by any one with a little greenhouse and they are the kinds likely to be found in the retail florists' shops. They must be grown from cuttings. A variety must be very well established indeed to come even fairly true from seed. Many growers start with the seeds of well known varieties and then single out the best plants from which to make cuttings, and so originate a variety or at least a "strain" by selection.

Among the best varieties which may be grown from seed and which will flower well in the garden are Purple Giant, Buff Queen, Double White, Black Prince, Salmon Queen, Sutton's Orange Scarlet and Carter's Gold Crest. Several in the list come from Europe. Fred Roemer introduced Purple Giant and Ernest Benary gave us Double White. Salmon Queen is a recent English variety and a particularly fine bedder. Black Prince is an intermediate variety which is widely distributed and well suited for bedding purposes. The color is a very deep crimson and the leaves are exceptionally dark. Probably this variety comes more uniformly true than any other red. Carter's Gold Crest is another English novelty with a color combination which makes a strong appeal to many people. It is soft pink, tinged with salmon and with a golden orange lip. This variety makes a remarkably brilliant bed.

If grown among other plants or for cutting in summer the tall varieties may well be chosen. They attain a height of about three feet. For bedding, the intermediate varieties, which grow about eighteen inches tall, or the dwarfs, which are only a foot high, are to be preferred. In an exposed position on a lawn a bed of dwarfs shows up splendidly and they bloom profusely. Both the tall and the intermediate varieties are grown under glass. Some varieties that seldom get more than fifteen inches high in the garden will shoot up three feet in a greenhouse. Of course it is important to have long stems when the flowers are to be cut.

Although really a perennial, the *Antirrhinum* is commonly handled as an annual, for it will bloom the first season even when seeds are sown in the open ground in April, May or first days of June. Earlier flowers are obtained by sowing the seed in March in a hotbed or coldframe. The plants like the sun, but will flower freely if they get it only half a day. Any good garden soil will be satisfactory but the finest flowers are grown when the soil is light and enriched with old manure. It is important to keep the seed pods picked; but all in all, few garden flowers require less attention or give a longer season of bloom.

When winter flowering plants are desired cuttings should be made in



Types of new Winter-flowering Snapdragons which have become favorites for cut flower under glass



Bedding Antirrhinum, which is useful for general purposes

March of seed sown in April. Cuttings made in April or even in May will give flowers the next spring. Plants should be set about twelve inches apart on the benches and nourishment given as needed in the form of bone meal, sheep manure or decayed cow manure. Of course no flowers must be permitted to form in the course of the summer and the young plants must be kept growing steadily.

Snapdragons are excellent flowers for growing in the private greenhouse, for they are easy to handle and give quick results. Few flowers are better for cutting, as they last a long time and lend themselves admirably to all sorts of decorative schemes. Even without a greenhouse it is still possible to have Snapdragons indoors, for they are very satisfactory as house plants. Sometimes plants may be taken into the house in the fall and will continue to flower for several weeks. It is also easy to make cuttings from the stems of cut flowers purchased in the late winter. If rooted in damp sand in a box or pan in the kitchen they will make good plants to set outdoors as soon as the garden season opens and plants started in this way will give exceptionally early flowers.



Here's a hoe that serves several purposes. The sharpened "ear" is used for fine work (see below)



Nelrose, one of the recent introductions among Snapdragons

What Hoeing and Weeding Does

PAUL E. TRIEM Seattle, Washington

INDISCRIMINATE hoeing is sometimes worse than no hoeing at all. Decide what you want to accomplish, then pick out your "weapons" intelligently. We cultivate the soil for one or all of three purposes: first, to kill the weeds; second, to form a "dirt mulch," or layer of fine, loose earth, which because of its mechanical condition shall be a poor conductor of moisture and so shall prevent, to a certain extent, useless evaporation; and, third, to aerate the soil.

Weeds can be killed either by removing them from the ground or by decapitating them. With some of the more tender undesirables in the garden, one beheading is sufficient; with the average weed, however, the process must be repeated. No plant can survive continuous treatment of this kind;

In the average sized vegetable garden, weeds are most efficiently kept in control by the use of hand or wheel hoes. The old-fashioned, straight-edged hoe is best for work between the rows. For fine work, close to the plants, a Warren hoe, with its "ears" beveled to a good cutting edge, will enable the gar-

dener to nip out individual weed stalks. A satisfactory hand weeder can be made by bending the heated blade of a case knife into a right angle and sharpening both edges. With this you can work close to the row without disturbing the roots of the law-abiding citizens of the garden patch. Probably the least efficient form of weeder though a good cultivator is the one which is built like a human hand, with bent fingers. It has a chronic failing of leaving tenaciously rooted weeds in the ground, while covering them with a film of dirt. It takes more than this kind of treatment to kill a determined weed.

Tillage with hand tools may be shallow or deep. Shallow cultivation serves to kill weeds and to establish a dirt mulch. It is best accomplished with a straight-edged hoe, wheel or hand. When the gardener is dealing with vegetables, such as tomatoes, which have a tendency to root widely and shallowly, tillage of this sort is usually best; also during times of drought, when the moisture in the soil needs to be conserved. Shallow hoeing protects the soil by blanketing it from too great

exposure to the air, where deeper cultivation would open the texture of the soil about the roots, and so encourage evaporation. Sometimes it is preferable to mulch such plants as tomatoes with straw or well-decayed manure rather than to cultivate close to them during dry weather.

The various processes of soil formation and plant growth progress only in the presence of approximately correct proportions of air and water. If the soil is waterlogged, nitrification does not take place as it should. It is estimated that not more than 60 per cent. of the possible soil saturation should be present for the most favorable growth of the average plant. Interpreted in terms of actual gardening, all this means, that if moisture is abundant or excessive, tillage, if the condition of the soil makes it possible at all, should be deep rather than shallow. At these times the kitchen gardener should use his Warren hoe or the cultivator attachment to his wheel hoe, and should work deep. During drought on the other hand, cultivation should be shallow.

Reliable Vegetables for Present Planting

ADOLPH KRUHM
New York

A HALF DOZEN LATE PLANTED CROPS THAT WILL SUPPLY THE TABLE IN FALL AND MAKE A CHANGE FROM THE ORDINARY RUN OF SUCCESSIONS

THE only reason that celeriac, leeks, kohlrabi, and some other excellent vegetables are so rarely found in gardens is that people do not generally give attention to the big possibilities of the later planted crops. Now all these are as easily grown as beans, turnips or pumpkins, and at this time of year are of great importance to the gardener who wants to make the most of his garden because they are all "transplanted" and are valuable as succession crops to follow the early kinds. Small plants can be bought from the seed stores or florists and can be utilized to immediately follow up exhausted crops, and so materially help the year's food production.

Brussels Sprouts, belonging to the cabbage class, are treated just like late cabbages and require similar conditions—rich, moist soil, cool weather and lots of water. Seeds are best started in boxes the end of May. When the seedling plants are six inches tall, transplant to the garden in a well prepared bed, setting them one foot apart in the rows and two feet between the rows. As every well-grown plant will furnish two quarts of "sprouts" worth 25 cents per quart, a piece of ground measuring 10 x 20 ft. will produce \$50 worth of them! Put this to the test this summer.

Cooking the sprouts offers no difficulties and prepared properly they are delicious. After trimming off the rough outside leaves, wash the sprouts and boil for half an hour in salt water and serve plain like cabbage, or make a French dressing as you would for asparagus, using the juice of a lemon, instead of vinegar, for flavoring.

Celeriac or turnip-rooted celery forms large, fleshy roots which make one of the finest salads imaginable. From seeds started in boxes in February transplant the young seedlings to 2-inch pots. If these are not available, biscuit boxes, tied with strings and cut in half, will serve the purpose admirably, each box furnishing two paper pots. Or seeds sown the latter part of May in a well prepared seed bed in the garden, putting the rows four inches apart will give transplants toward the



Brussels sprouts are as easily grown as cabbage and give a welcome green vegetable during late fall and early winter

end of June. Put out in rows three feet apart and plants six inches apart in the row. They require lots of water for perfect development. Draw shallow furrows, about six inches away from the plants on both sides of the rows. Turn on the water in the hose and let it run down these furrows until the soil is thoroughly saturated. Repeat this once a week throughout July and August. Between irrigating times, hoe freely and hill up slightly. By October you should harvest a fine lot of roots which may be covered and carried over in the garden the same as beets, or pulled and stored in a frost-proof cellar in moist sand.

Cook the roots in boiling water until so tender that a fork will pierce them easily. This usually requires 45 minutes. Drain and remove the skin, cut in one-fourth inch slices, and serve with cream sauce. The best way to eat them, however, is to let the roots get cold after boiling, then peel, slice and serve cold as a salad with French dressing of olive oil and vinegar, with a few slices of onions for flavoring.

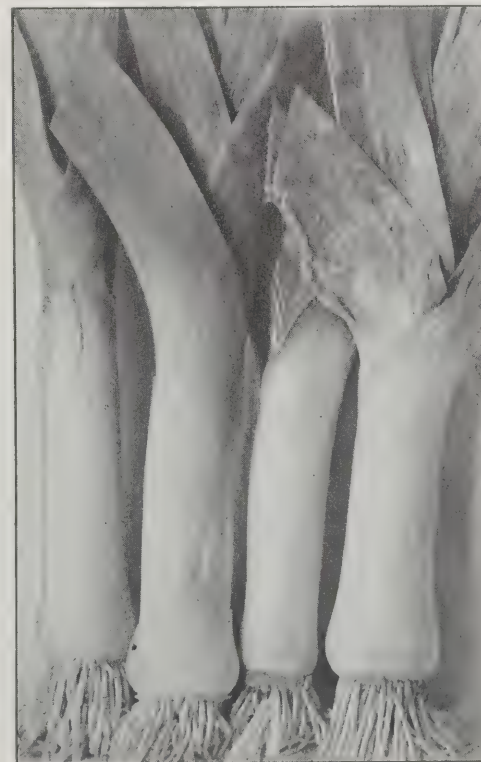
Kohlrabi, or turnip-rooted cabbage, is another wholesome fall and winter vegetable of the Brassica family. You may sow it and Brussels sprouts in a like manner at the same time. Transplant into the garden by the middle of July in rows five inches apart, two and one-half feet between the rows. Give shallow cultivation and do not hill. The roots should grow quickly or they will become woody. Do not let the plants suffer from lack of moisture, but do not water them as freely as root-celery. Kohlrabi is in the best condition for table use when the "bulbs" average three to four inches in diameter. Use them as fast as they reach this stage of development. Those that grow past that size should be left in the soil and later on, chopped up in a root cutter, will furnish chicken feed. By making several sowings you may have kohlrabi until the holidays. Pull all roots before heavy frosts and store them in a cellar.

For cooking kohlrabi cut the roots into dice and boil until tender. Serve with cream sauce or mash them in the same manner as turnips. Kohlrabi is easier to digest than any other vegetable of the cabbage family.

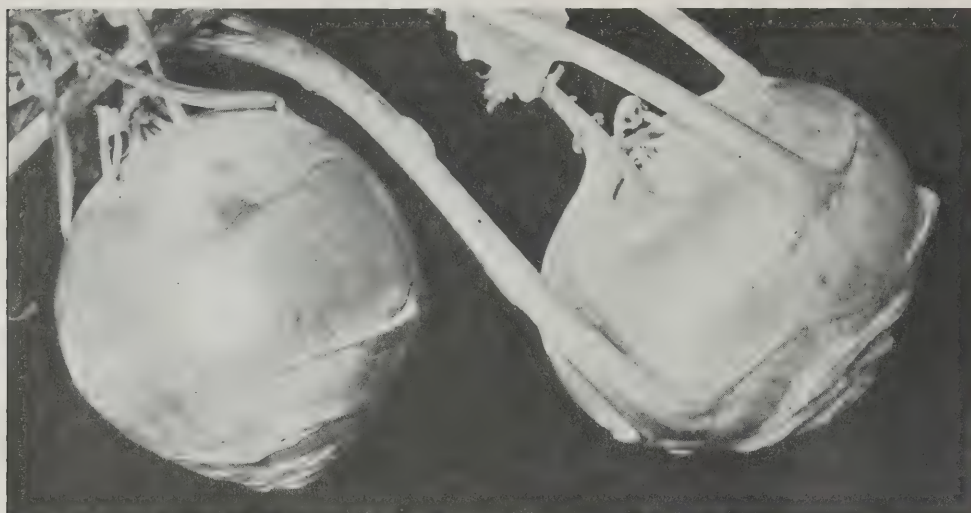
Leeks are a very mild-flavored type of onions that does not form bulbs. The edible portion of the plant consists of the thick centre stalk formed by many layers of fleshy leaves. When well-grown, leeks average eight to ten inches long and nearly two inches in diameter. Seeds are sown just like onion seeds—early in April in rows twenty-four inches apart. When seedlings are four inches tall, thin them to stand five inches apart in the row. Hill slightly and cultivate freely. After plants are a foot or more tall, draw soil up around them to blanch the stalks. Excellent results are obtained by starting leeks in boxes and transplanting them to carefully prepared trenches, as you would celery. Fill in these trenches as plants grow. When fully developed and with the approach of frost, cover rows with straw or boards.

Cook the leeks, after carefully trimming and washing them, by boiling a half hour in salt water. Make a cream sauce and serve hot. And a salad is made from the stalks, after they have been boiled, by cutting them up in pieces one and a half to two inches long. Let these get cold and add a dressing consisting of one part of olive oil and two parts of vinegar, using pepper, salt and a pinch of garlic for seasoning.

Red Cabbage is the least known of this large and valuable class of vegetables. True, the heads do not grow as large as those of common cabbages, but 100 heads of red cabbage may be raised on a piece of ground which would support only fifty of white cabbages, and when properly cooked red cabbage



For a mild onion flavor grow the leek. It is handled much like celery and is a welcome seasoning



Kohlrabi is a cabbage with a swollen turnip-like root which should be eaten young

has an absolutely distinct flavor. The directions given for raising Brussels sprout plants will also apply to red cabbage. Plants may be set eighteen inches apart, with two feet between the rows. They mature by the end of September.

Prepare red cabbage by trimming the outer leaves; cut the heads into small pieces, boil about 15 minutes, drain and chop fine. Place in a stewing pan, add two tablespoonfuls of butter, salt and pepper to suit taste. Get a small muslin bag in which place one third of five cents' worth of mixed spices. Place this in the stewing pan and let it cook slowly for an hour, stirring occasionally. Serve hot, adding perhaps a little more butter. Before serving throw out the little bag with spices. Sometimes red cabbage is preferred to the white for making cold slaw.

The planting line must feed the fighting line.

Plant Now and Grow Salad in Your Cellar All Winter

ANNA M. BURKE Massachusetts

FRENCH ENDIVE, THE FANCY SALAD OF EXCLUSIVE TABLES, IS EASILY AVAILABLE IN WINTER AND SPRING TO ANY ONE WITH A GARDEN

FRESH, crisp salad growing in one's cellar all winter! It sounds too good to be true, doesn't it? And when we add that we are speaking of the luxury variously known as witloof chicory, Barbe de Capucin, and French endive, our story assumes the proportions of a fairy tale. Yet a bountiful supply of this most delicious salad, for which restaurants and markets demand such fancy prices, on the ground that it is "imported," may be grown in the cellar with less care than is required to produce a head of lettuce. In fact, the only care required during the winter consists in watering when dry—perhaps once a week. The real work is done in the garden during the summer, and is simple in the extreme.

Sow seeds in shallow drills eighteen inches apart, either in a frame or seed-bed to be transplanted later, or where they are to grow. June 1st to 15th is not too late—so that it can follow a crop of some early vegetable such as early peas. The peas are done by July 1st, and the vines should be cut off, leaving the nitrogen-bearing roots to be dug in, thus adding to the fertility of the soil, add bone meal and transplant the young seedlings from a seed-bed. If the seeds are sown where they are to grow, the plants should be thinned to stand 6 inches apart in the row. Those removed in the thinning process may be transplanted, if desired.

Keep the ground about the plants constantly stirred with a wheel-hoe, or a scuffle-hoe and rake. A tablespoon of nitrate of soda dissolved in four gallons of water and applied at the base of the plants once a week will greatly stimulate their growth. The object is to get as large roots as possible; the

larger the roots, the better they will force during the winter.

After the first black frost has killed the tops, the large, parsnip-like roots may be dug, and the wilted tops cut off an inch from the crown. The roots should then be piled near the house in a sheltered corner, covering them with coarse litter. A dozen roots may be brought in and forced at once, but it is advisable to leave the greater portion out for a week or two, as the frost seems to remove much of the bitter tang. [For a spring crop the roots may be left where they grow and, after frost is out cover the tops with straw litter or manure held in place by boards—Ed.]

The method of forcing is as follows: Select a box at least eighteen inches deep, and if there are no cracks in the bottom, holes must be bored to allow for drainage. Have at hand also in the cellar a quantity of rich garden soil, to which has been added a sprinkling of fine bone meal (The roots may be packed more evenly if the box is tipped over on its side, with the opening facing the worker).

Place a layer of soil on this under side, putting an inch or two of drainage—cinders or

into its original upright position and over the crowns spread sifted soil to within half an inch of the top. Water well with luke-warm water and set in a warm place, close to the heater. To insure well blanched heads light must be excluded. This may be done by a V-shaped thatch of newspapers held up by pieces of shingle inserted in the soil, or a box may be inverted over the roots.

The new growth starts very quickly. In three or four days white shoots begin to appear, and in a week they are ready to cut. If good-sized roots were planted, they will produce cone-shaped heads two-inches or more in diameter.

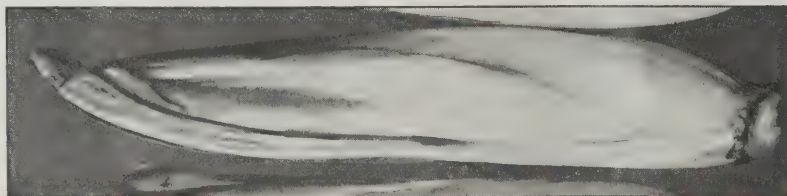
Another box of roots may be started about the middle of November, leaving the rest to be planted about the first of December. The first plantings will continue to bear all winter, however, if care is taken to cut the heads at the surface of the soil, so as not to injure the crowns.

The surface of the soil in the box may be stirred occasionally with a small hand-weeder, and should be moistened with luke-warm water whenever dry. Once a fortnight a liquid fertilizer—one teaspoon of nitrate of soda to two quarts of water—should be added, and about the first of February a sprinkling of fine bone meal may be raked in.

Witloof chicory makes a delicious salad when served alone with French dressing, or it may be combined with lettuce, vegetables or fruits in almost endless variety. Some combinations which we have found particularly good are appended:

Chicory and Grapefruit Salad: Separate the chicory leaves and arrange them in nests on individual plates. Remove the sections of pulp intact from a grapefruit cut in halves crosswise. Pile in the centre of the nests and sprinkle with a little finely chopped green pepper. Serve with French dressing, to which has been added some of the juice of the grapefruit.

Cress and Chicory Salad: Arrange a bunch of crisp water cress in the centre of a shallow



"French Endive," really a chicory is an easily grown crop for salad in winter and spring

coarse litter—at the back (which is the bottom of the box when in its upright position). On top of this layer of soil arrange a row of roots, placing them an inch apart and having the crowns even and at least four-inches below the top of the box. Cover with an inch of soil, putting the drainage at the back as before, and arrange another row of roots—and so on until the box is full. Then tip the box back

serving dish. Around this place the chicory leaves, like the spokes of a wheel, slipping the end of each leaf through a narrow ring of pimento. Serve with French dressing to which has been added a teaspoon of chopped chives.

Chicory and Celery Salad: Cut the chicory leaves into half-inch lengths, and add an equal amount of heart celery cut into quarter-inch pieces. Toss together and arrange in nests

of heart lettuce. Serve with mayonnaise dressing to which has been added one teaspoon each of chopped pimentos and chives, a tablespoon of chili sauce, and a hard-boiled egg chopped moderately fine.

Chicory and Orange Salad: Arrange the chicory leaves in fan shape on a flat serving dish, alternating sections of seedless oranges with the chicory. Mask with mayonnaise dressing

and sprinkle with shredded candied cherries.

Chicory and Beet Salad: Cut medium sized beets in quarter-inch slices and cut out the centres to form rings. Into these rings slip four or five leaves of endive. Arrange on individual plates, allowing two or three fagots of leaves for each service. Pour over French dressing to which has been added one tablespoon each of chopped green pepper and chives.

“Doing Up” the Surplus From the Garden E. E. TRUMBULL New York

CANNING THE PRODUCE THAT CAN'T BE EATEN FRESH—LEFT-OVERS FROM CURRENT NEEDS CAN BE PRE-SERVED FROM LOSS

THE easiest way to fill our shelves with the products of the garden is to begin early in the season taking each variety as it comes along when at its best. As vegetables deteriorate very rapidly after reaching their prime it is easily seen they must be used as soon as they are ready. Again gathering the fruit promptly helps the plants to continue growing and producing.

There is no reason why any family owning a small plot of ground should not have a plentiful supply of canned vegetables for winter use. The whole secret lies in sterilization which is accomplished by long cooking. All vegetables are covered with the bacteria and spores of decay, and exposure to heat will kill the bacteria but not the spores. The scientific method is to boil the vegetables in the jar one hour for three successive days. The first boiling kills all the bacteria, but does not kill the seeds or spores, which as soon as the jars cool germinate, producing a

fresh crop. The boiling the second day kills these bacteria before they have time to produce spores. The third boiling is to make sure doubly sure.

Glass jars with glass tops are best containers and new rubbers must always be used. Any kind of kettle may be used that is sufficiently deep to hold the jars, and be covered tightly to retain the steam. A piece of wire netting may be cut to fit the bottom of the kettle, as the jars must not rest directly on the bottom or they will break, and pieces of cloth should be placed between the jars, with these precautions there will be no danger of breakage

if the covers of the jars are fastened loosely to allow the steam to escape.

Gather vegetables early in the morning, the sooner they are canned after gathering the better the flavor will be. Nothing tough, over ripe or wilted should be used.

Asparagus and string beans should be broken into inch long pieces.

Peas and lima beans are shelled and corn sliced from the cob with a sharp knife and packed closely without cooking into the jars, add a pinch of salt to each jar and fill to overflowing with cold water. Adjust the rubbers, fasten covers in place *loosely* and place the jars in the receiver in which there should be enough cold water to come half way to top of jars. Cover the kettle tightly to retain the steam and place over the fire.

After the water comes to a boil keep it boiling for one hour. Then lift the kettle from the stove and fasten the pressure clasp on each jar. The cans may be left in the water until the next morning. When the pressure clasp is loosened and the boiling process repeated, and again the third day. It is important to remember that the pressure clasp be loosened before, and tightened after each cooking.

Greens are especially desirable when canned as they retain their attractive color and the most critical can detect no difference in appearance or flavor between the canned and the fresh article. Spinach, beet greens, mustard and swiss chard are all canned in my home. They are boiled in salted water until wilted before packing in the jars, which are then treated as described above.

Pumpkin and squash should be cooked until tender, then pressed through a colander, filling jars to running over and cook as for asparagus.

For storage a cool dark cellar is the best place. Every can should be washed and thoroughly dried before putting away.



Begin early in the season to can all surplus fruit and vegetables. Even the daily surplus from the table may be put up for future use. Every bit canned is a saving from waste

My Hobby in Raising New Irises

GRACE STURTEVANT Massachusetts

[EDITOR'S NOTE:—Miss Sturtevant's exhibits of seedling Iris of her own crossing have attracted much favorable comment at the exhibitions of the Massachusetts Horticultural Society and have been given special awards. In this note she explains fully her method of operation and opens up a field of speculative interest for the enthusiastic gardener.]

THE hybridization of Iris is a field in which little has been attempted here in America, yet is such a fascinating one that I should like others to realize, from my success, what they might do for themselves and how they might participate in the joy and anticipation of creating new varieties even if of little real merit. The possible combinations of delightful colors are endless; often so unexpected and remarkable as to be quite bewildering.

The Bearded Iris of our gardens have many points in their favor as the subject of such a hobby. They are hardy, withstanding both winter cold and summer drought; are sure to bloom and do not ordinarily produce seed unless crossed by hand; the seedlings are large enough to handle easily and can be best planted and grown in the open without troublesome frames or greenhouses. This enables any one with but three clumps (or only one if it is of the right kind and he can borrow a few stamens from a neighbor) to make a beginning. The time, too, before we know the result is not as long as you might think; perhaps a third (or under better cultural conditions a far larger proportion) of the seedlings will bloom two years from making the cross. After that you may have another crop coming along each season; there need be no break in the succession and the only disturbing question will be, "where shall I put the new seedlings" and "what shall I do with the ones I do not want to keep?"

I make the cross in the garden, record it in pencil and pin the folded record about the stalk. This I find better than tags and it will last until the seeds are ripe. At first I covered the crossed bloom, but it seems unnecessary as most of the blossoms last only one day and the bees, for whose especial convenience the Iris flower was made according to some botanists, in my garden crawl in and out at the bottom of the falls without touching the stigma. I remove the stamens carefully before they are open and at once thoroughly cover the stigmatic lip with pollen from the anther of the bloom I am using; for, as with other plants, it has been found that the first coating of pollen is the effective one.

The pods may be picked when green quite a time before they burst open: if the seeds have turned brown, they are ripe enough: take them out of the pod, dry in an airy place and then plant in your seed bed out-of-doors. A layer of leaves is a desirable protection but remove it early as the seeds usually germinate about the time the parent plants are starting into growth. A bed should have been prepared in the fall and as you see an inch of seedling leaf you can transfer it at once in the place where it is to grow and bloom. Few of my seedlings have survived if not transplanted.

The little plants are put out in rows about a foot apart as they will have bloomed before they become crowded, later a shallow cultivation to keep down the weeds is all that is required. When a fertilizer is needed I have found bonemeal as good as anything, but lime is as necessary to these as it is to the well-being of all the Bearded Iris.

I mentioned before the surprising results from various combinations. This means not only that every pod is different but that almost every seed produces a different combination of color or other characteristics. For instance from *I. pallida dalmatica* × *aurea* (germanica) cross I raised eleven plants of which four are what I call "palaurea," three delightful, clean combinations of lavender and yellow of a medium tone and the other with a charming predominance of yellow. The rest were much the lavender of *pallida*; there was no clear yellow, though *aurea* was dominant in growth throughout.

Then again I had quite a surprise when forty-nine seedlings from two pods of *I. pallida* × *Jeanne d'Arc* (*plicata*) cross gave me all blue-lavenders of varying shades with the exception of one dwarf gray-white. And in a cross between an insignificant form of *I. amoena* (white standards and purple falls) and *Iris King* the result though lovely, was most unexpected, for the purple appeared in all the falls and the standards were respectively, clear lavender, peach, fawn, and a yellow with an olive cast, while only one resembled the parents much in growth.

I shall choose but one more example from the many crosses recorded, almost all of which have resulted in effective garden plants. *Jeanne d'Arc* and *Comte de St. Clair* are both *plicata*s with a delicate fringe of blue and pink-lavender respectively; these crossed with *Oriflamme* gave very diverse results; nine plants in all, five from the *Comte de St. Clair* pod were whites similar to *Jeanne d'Arc* and the four from the *Jeanne d'Arc* pod included a clear light lavender, one pink-lavender, and two similar to *Oriflamme*, all four unusually large.

These few examples show the uncertainty of the results that may be expected from the appearance of the flowers used. Color seems to be the least reliable of the Iris characteristics; it might be called almost fluid, combining or being overlaid, like water color washes, one upon another, or appearing in wonderful penciling or venation. This feature of color is of first interest to the beginner but as the work progresses, he recognizes new qualities, new points of excellence, new aims, and his enthusiasm is continually increasing and expanding.

Iris raising is a delightful hobby and I hope that many will ride it for I consider the Iris as worthy of a society of its own as many of the other flowers and a society is only one way to meet and consult with other enthusiasts.

Where the cross is made in June and the resulting seeds are planted in late August or early September many of them will germinate the following April (although there is an instance on record where hybrid Iris seed lay dormant 18 years, I think two years will, in the open ground account for most of the seeds). Perhaps a third of these seedlings transplanted to a well prepared bed will, under favorable conditions, bloom the following spring and practically all will flower the next year, i.e., some will bloom two years from making the cross, or one year from germination.

RECENT BOOKS

Standard Cyclopaedia of Horticulture. Edited by L. H. Bailey. (The Macmillan Co., New York. Six vols.; illustrated; \$36.00).

Five years of work is brought to a successful completion by the publication of the sixth and last volume of the *Standard Cyclopaedia of Horticulture*. Though in a certain sense a revision, by the same editor, of the *Cyclopaedia of American Horticulture*, it is at the same time an entirely different work, larger and of wider scope.

The *Standard Cyclopaedia* comprises 3,639 pages and 4,056 illustrations in the text, and 120 whole-page illustrations, some of which are in color. The present work includes not only the plants sold in the United States and Canada, but also those that are actually grown in collections of specialists; and is in general a presentation of plants generally used and referred to in horticulture and gardening, whether they are actually found in trade lists or not.

The large army of experts and specialists, who have contributed services as collaborators, numbers more than 3,500, so that the *Cyclopaedia*, as a whole, may be fairly said to represent the concentrated essence of the best horticultural skill of America. Not only does it deal with plants and plant materials, but it presents in concise form cultural instructions to the number of more than 3,500 articles. And a new feature in this work as compared with the old, is an index of the six volumes which makes easy reference to names that are otherwise obscure and listed under different headings.

Some idea of the scope of the work may be realized by a statement of the fact that the total number of Latin plant names accounted for approximates close upon 40,000, which represents an addition of some 3,500 names in excess of those in the older work. Inasmuch as the question of plant names is more or less pertinent to the handling of plants, considerable attention has been given to a systematic treatment, and in the main, the regulations of what is known as the "Vienna Code" have been followed. The editor assumes a friendly conservatism in the matter of names since "botanical names do not belong to botanists to do with them as they will. The public has good right to these names; and this is particularly true in the names of cultivated plants."

In this *Cyclopaedia* the interest is in stability of names rather than in priority of names.

A supplement in the concluding volume is a report of the American Joint Committee on American nomenclature, Harlan P. Kelsey, of Salem, Mass., Secretary, which is a list of the Latinized names commonly used in North American literature and commerce, with their equivalents in the *Cyclopaedia*. This is a systematic effort of those most interested in trade dealings to arrive at a uniform system of cataloguing plant references. In this respect perhaps, as in any other—the bringing into general acceptance a simplified system of uniform names for the same plant all over the country—this *Cyclopaedia* must serve an important and useful purpose. It remains only for the horticulturists, professional and amateur alike, to accept this monumental work as the real standard and to follow it consistently. The fact that there are some changes from the old work is merely the inevitable record of the progress of knowledge.

The book is of uniform size with its predecessor, printed in the same style and in the same typographical arrangement. A credit to all concerned in its production and a valued possession of American horticulture.

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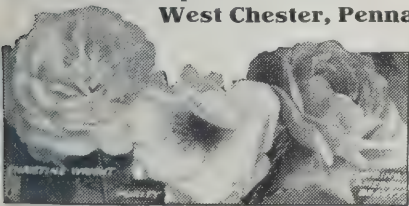
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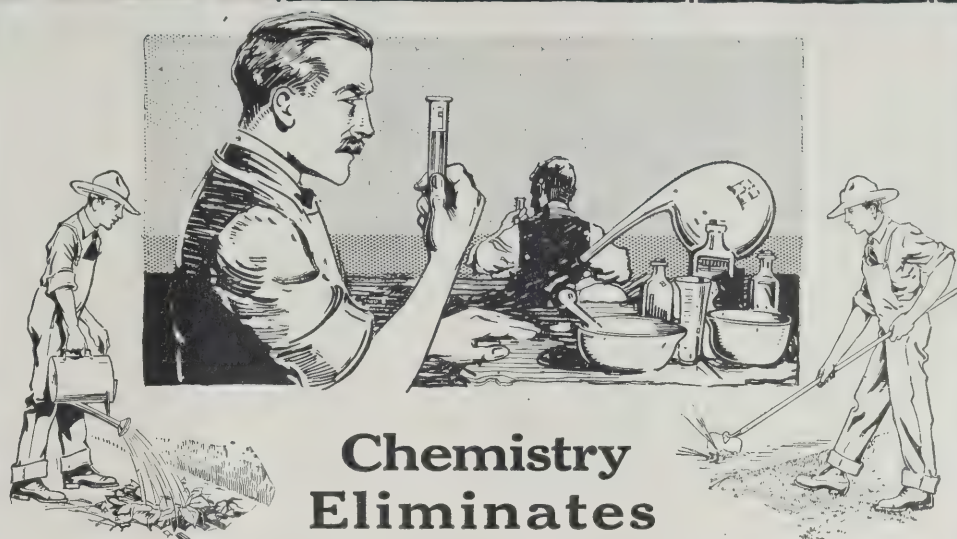
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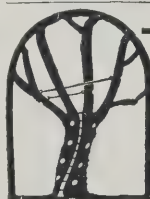
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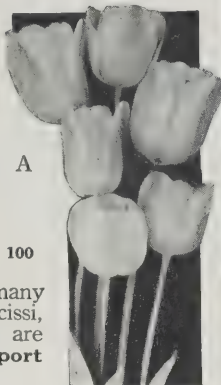
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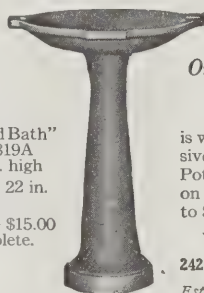
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The Nitrogen of "Sulphate"

To the Editor of the Garden Magazine:

Under the heading "Fertilizers" in THE GARDEN MAGAZINE for March, I note an interesting article entitled "Why Garden Soils Need Nitrates," by Mr. James B. Mormon.

The article is in the main excellent and in normal circumstances its advice might well be followed. It is only to the last paragraph that exception may well be taken. In this he says that sulphate of ammonia is not so generally recommended and it should be used by gardeners with caution until more is known about its effect.

This, I think, is hardly a fair statement of the case. Sulphate of ammonia is almost universally used by those who use commercial fertilizer at all, only they use it as a component of their mixture rather than as a separate application by itself. This arises from the fact that it is naturally better adapted for use in mixtures to form a complete fertilizer than is nitrate of soda, although it is well recognized by agricultural authorities that its beneficial action is the same. It is, therefore, probable that Mr. Mormon has used sulphate of ammonia extensively whenever he employed a complete fertilizer and has enjoyed its benefits without knowing exactly to what ingredient they were due.

In its fertilizing action sulphate of ammonia differs very little from nitrate of soda except that its nitrogen, being in the form of ammonia, requires from a week to ten days to become nitrified by the organisms of the soil to the form in which it can be assimilated by plant life. It is thus a little slower in its action than nitrate of soda, but makes up for this by continuing its action for a longer space of time, making unnecessary the separate applications which Mr. Mormon advises. It has also the property of being retained by the humus in the soil and does not leach out as readily in heavy rains. Aside from this, it can be applied at the rate of from 100 to 300 pounds per acre on any garden soil that is in a good state of cultivation with entire confidence as to the beneficial results. It is admirably adapted for top dressing or side dressing after the plants are started, or it may be scattered broadcast in the seed bed before seeding or setting out the plants. It is a well-accepted, thoroughly reliable form of nitrogen and as such does not deserve to be passed by with the casual hesitating comment that was accorded it.

Director Charles E. Thorne, of the Ohio Experiment Station, says that "sodium nitrate and ammonium sulphate have been nearly equally effective as carriers of nitrogen and both have been equally better than tankage." He made this statement after two years' experimental work on a tobacco-wheat-clover rotation. Seventeen years' test in a corn-oats-wheat-hay rotation shows practically the same conclusion. So high an authority as Dr. A. D. Hall, past director of the Rothamsted Station, says ("Fertilizers and Manures"):

"As a nitrogenous manure sulphate of

(Continued on p. 294)

If a problem grows in your garden write to the Readers' Service for assistance



My Japanese Irises Are Now in Bloom

I want you to see them. Their marvelous flowers, nearly a foot across, reflect the oriental splendor of their native home.

All through June and during the first days of July my Jap Iris gardens will be a source of great delight to many lovers of the unusual in flowers. Won't you come and see them, too? You are welcome any week day.



Adolf Müller DE KALB
NORRISTOWN, PENNA. NURSERIES

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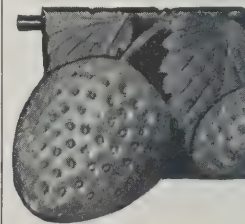
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Strong plants in 2½ inch pots \$15.00 per 100; 3½ inch pots \$20.00 per 100.

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unless you give it proper care and attention. This is true also with anything you plant.

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tells What, Where, When and How to Plant, How to Prune, Fertilize, Cultivate and Protect Rose Bushes, Climbing Vines, Lilacs, Peonies, Phlox, Iris, Shrubs, Hedges and Ornamental or Shade trees. 10 cents per copy—Money back if not satisfied. Contains no advertising.

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Pedestals, Gazing Globes

Dials to order for any latitude. Guaranteed to record sun time to the minute.

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Ask for Folder C-2

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FROM INSECT ENEMIES

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by Spraying with

"BLACK LEAF 40"

Nicotine Insecticide (40% Nicotine)

Sold by Seedsmen, Druggists, etc. Write for free
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Watering Simplified

"Time is Money"—in the garden and around the home as well as in business! Do you recall the many hours spent summer after summer, trying to keep your grass and garden from "dying of thirst"? Do you recall the "fussing" with a leaky hose and the "mussing" up of your clothes, not counting a "ruffled" temper? To keep gardens and lawns growing during dry spells with the least amount of labor and trouble, we offer and recommend

Dayton Rotary and Oscillating Sprinklers

The most practical, durable and efficient sprinkler made for all irrigation purposes. Adjustable to all conditions and requirements. Nozzles can be regulated as to size and kind of stream required. The only machine on the market that operates automatically in either a complete circle or half circle! It guarantees the most even distribution of water.

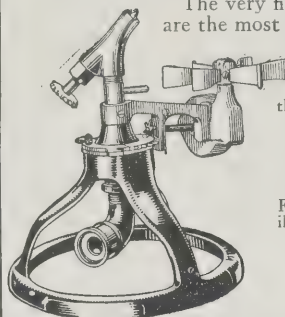
For the Lawn or Garden

The very fine sprays, falling as softly as summer rains, are the most beneficial. So fine are the sprays from the "Dayton" that a gentle breeze will sway them. The sprinkler can run all day and there will be no baring of roots, no puddles to mar the appearance of your lawn, or no washing out of holes that would injure the productiveness of your garden.

Lawn Sprinkler \$6.
(Illustrated)

We also manufacture an Irrigation Sprinkler at \$5. For full particulars regarding Dayton Sprinklers get our illustrated folder which is gladly mailed free on request.

Dayton Irrigation Company
Dayton, Ohio



Summer Blooming Begonias

make ideal garden and border plants. Their large, single or double flowers are magnificent. June is the ideal month to plant them. They do well in partial shade. Foliage is highly ornamental. In red, white, rose, yellow and orange color, in both single and double shapes.

Special Offer:—We will mail one fine bulb each of above colors in the double flowering type and two strong bulbs each of the five single flowering sorts, fifteen sure-to-bloom bulbs in \$1 all postpaid for



Booklet Free:—Describes the choicest kinds of Dutch bulbs and offers them at money-saving prices. Write to-day.

NETHERLAND BULB CO., 32 Broadway, N. Y.

Fairfax Roses

Do you want an abundance of roses all summer? Then plant Fairfax Roses. They are grown slowly under natural conditions (not forced) will bloom the first season for you under ordinary care, and will be a constant delight for many years.

Book on request giving instructions as to the proper method of growing roses.

W. R. GRAY

Box 6

Oakton, Virginia

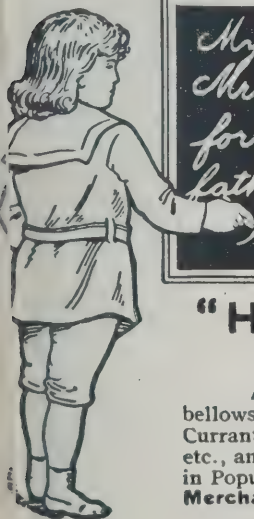
Let Me Show You—

Cold type and pictures cannot do justice to the fairness and beauty of flowers. If more people could actually see my wonderful Dahlias, when in bloom, there would be more Dahlia enthusiasts. I am willing to do my share and will send

50 Dahlia Flowers for \$1

I will ship, by express, 50 beautiful blooms, different varieties, properly labelled and carefully packed anywhere within 500 miles. When you get them note names of sorts you like best and let me book your order for roots to be delivered next Spring. Write now for your sample Dahlia flowers.

George L. Stillman, Dahlia Specialist Box C-77, Westerly, R. I.



My Grandfather used
Mr. Hammond's Slug Shot
for Potato Bugs. So does my
father use it. My Mother puts
Slug Shot on
roses.



"HAMMOND'S SLUG SHOT" USED FROM OCEAN TO OCEAN

A light, composite, fine powder, easily distributed either by duster, bellows, or in water by spraying. Thoroughly reliable in killing Currant Worms, Young Potato Beetles, Cabbage Worms, Slugs, Sow Bugs, etc., and it is also strongly impregnated with fungicides. Put up in Popular Packages at Popular Prices. Sold by Seed Dealers and Merchants.

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GOLD MEDAL GOODS

For a pamphlet worth having on Insects and Blights, write for pamphlet.

Our Products are sold by Seed Dealers and Merchants in U. S. and Canada

Your Garden Tools

The push-ahead-a-step-at-a-time kind are the ones you want—with high wheels to run easy over rough ground, even with a woman behind the tool, and with adjustments so that a boy or girl can handle it. Tools of this kind will do as much in one hour as you could with old fashioned hoes in ten hours. Easy work and better results.

IRON AGE Wheel Hoes and Seed Drills

Include 38 or more styles and combinations from which any gardener can choose just what he needs. Accurate sowing in rows or hills, perfectly safe cultivation astride young plants or between rows, hoeing, weeding, ridging, opening furrows and covering them. 16 inch wheels. Steel tube frame.

Ask your dealer to show them and write us for booklet "Home, Farm and Market Gardening with Modern Tools."

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Spraying
Machinery,
Potato
Machinery,
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Tools, Etc.

School of Horticulture for Women

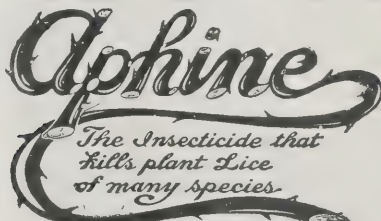
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Three short courses in Practical Horticulture for Amateurs. Spring, Summer and Fall. Instruction and practical work in Flower Gardening, Fruit Growing, Vegetable Gardening, etc., etc. Very moderate terms.

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The Recognized Standard Insecticide

will help keep your garden free from insect pests, with little trouble and at small cost. Popular with home gardeners everywhere because it is so easily applied. Economical, because it comes in highly concentrated form, to be diluted as per directions on each can.

Saves Vegetables, Fruits and Flowers

It positively rids plants of all sap sucking insects like lice, green fly, etc. Endorsed by leading growers throughout the country. Does not stain foliage or injure vegetables, but does most effective work either in the garden or with house plants. Put up in various sizes at prices within everybody's reach and sold by all representative seeds houses and dealers in horticultural supplies.

For further particulars apply to

APHINE MANUFACTURING CO.

Manufacturers of Agricultural Chemicals

Madison

New Jersey

(Concluded from page 292)

ammonia is practically as effective, nitrogen for nitrogen, as nitrate of soda; it is also to all intents and purposes as rapid in its action, because the process of nitrification, which generally precedes the utilization of the ammonia by the plant, takes place very rapidly in suitable soils."

A test by the writer on the farm of W. O. Davids, Peconic, L. I., last year, gave 191 bushels of potatoes per acre with sulphate of ammonia as against 114 bushels without, both plots being fertilized alike. Such quotations could be extended without limit.

It is perhaps more to the point to emphasize the fact that sulphate of ammonia is a native source of nitrogen and is produced in this country, whereas nitrate of soda, whatever its merits, is necessarily imported from Chile. In such times as these, it is the part of every American tiller of the soil to inform himself accurately as to how best we can use our own natural resources and make available our own supply of nitrogen for the purposes of agriculture.

C. G. ATWATER.

Transplanting Roses in Summer

THE local florist told me that there was no use in trying to transplant Roses during a hot, dry spell in late June. But because we had to have the garage, and because, to build it we had to dig up part of the Rose-bed, I was obliged, therefore, to make a heroic effort to save the bushes. There was one *Rosa rugosa* which was still blooming. The other nine had finished for the year. We saved all but the *rugosa*; and I think I know why we lost that—it had no roots.

As a beginning, we cut back all shoots, both old and new, to within ten inches of the earth. This was in order to stop growth and to lessen the strain while the roots were establishing themselves in the new quarters. We dug out the new bed to a depth of almost two feet, piling up the earth so that it was returned in about the same order—that is, the sub-soil was still the sub-soil, and the top-soil still on top. The ground was a rather rich clay, located on the south side of the lawn and well drained, being high ground.

Digging up the bushes was a tedious process, as they had been so closely set that it was difficult to loosen the earth among the roots without breaking some of them. We refilled the new bed to within a few inches of the top and flooded it with water. After this had soaked in, we set the bushes, except the *Rosa rugosa*, and filled in about them with the thoroughly fined soil, and left them a little high, to allow for settling. We then soaked the top-soil and covered the bushes with newspapers pegged down with sticks. At night we uncovered them for air, and when the earth needed it water was given. We did this for three or four days and should have continued it, but I was called away.

There followed a drought of at least six weeks, during which, though we kept the ground moist, the bushes did not show a leaf. After the rain fell, however, they leafed out beautifully.

Indianapolis, Ind.

L. LENNOX.

[EDITOR'S NOTE: One cannot be arbitrary in gardening matters: Our man misunderstanding directions, transplanted a score of Roses the middle of last August and they all lived.]



Limited Number of

3 Year Old Everblooming Rose Plants at Wholesale

Here is a rare opportunity, indeed, for lovers of the Hardy Everblooming Rose. 3-year-old plants are always difficult to obtain and seldom, if ever, are they obtainable at such low prices. All of these plants

Will Flower This Season

We have but a limited quantity and can fill only such orders as are received before our supply is exhausted. We offer now—

PRIMA DONNA—A grand deep pink, fine form, very fragrant and double, quite new. 75 cents each.

MRS. AARON WARD—The best orange yellow. Fine for bedding and cutting. 35 cents each, \$3.00 dozen.

KILLARNEY—Strong grower, free bloomer, brilliant pink, large full flowers, delightfully fragrant. A rose of great beauty. 35 cents each, \$3.00 dozen.

KILLARNEY WHITE—Pure white, flowers very freely. 35 cents each, \$3.00 dozen.

SUNBURST—A truly great rose, rich coppery yellow, strong grower, long stems, fine for cut flowers. 35 cents each, \$3.00 dozen.

RICHMOND—Scarlet, crimson, pointed buds on tall erect stems, free bloomer. 35 cents each, \$3.00 dozen.

Many other varieties. List on application.

Satisfaction guaranteed. Mail your order to-day. Plants will be shipped via express or parcel post in time for perfect planting.

GUTTMAN & RAYNOR, Inc.

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TREES
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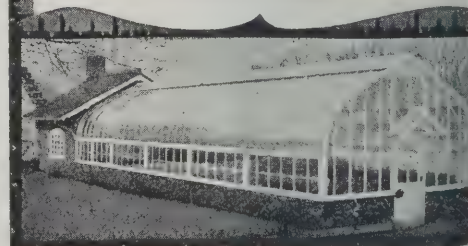
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Our Catalog,
"Suggestions for
Effective Planting"
on request.

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KING CONSTRUCTION CO.
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Write for Booklet



You Insure Your House Why Not Your Garden?

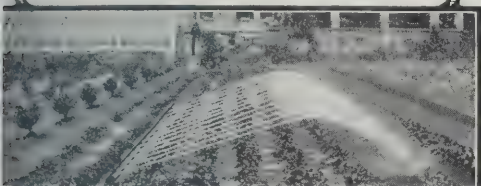
A few weeks' dry weather at the critical period may lose you the time, money and labor put into the garden. A few dollars invested in an efficient irrigation outfit will insure you against this loss and increase your crops enough to pay for itself.

Campbell Oscillator Ideal for Garden Use

Gives fine rain-like shower, thoroughly watering the ground but not injuring the tenderest plants. Distributes water evenly, on one or both sides of machine as desired, in straight rows—but does not pack the soil. Light in weight, easily moved, quickly adjustable, simple and durable.

Write for our booklet, "Artificial Rain," describing full line of irrigation devices at prices to fit every purse.

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Now, Man Power Counts Most!

Mobilization of the nation's men and resources puts man's time on a premium basis. Turn your spare time into dollars by making a vegetable garden. Let the

Colfax *Spring Lever* Cultivator

help make garden work a pleasure. With it you can do more in one hour than your neighbor can do all day, working the old-fashioned way. Works on entirely new principle and splendidly balanced. Many times more efficient with the motion and spring lever bars over the 26 in. wheel. Let us prove it! Send for full information—NOW!

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Patented April 11, 1917



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"Catalogue H-30" tells all about 'em. When writing enclose 20c. and ask for Catalogue "H-30."

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These are fully described in Dreer's Garden Book for 1917, together with cultural instructions on the growing of Water Lilies. The best Catalogue published, containing 288 pages, four color and four duotone plates, hundreds of photographic reproductions, and offers the best of everything in Seeds, Plants, Bulbs, etc.

Mailed free if you mention this publication.

HENRY A. DREER, 714-716 Chestnut Street, Philadelphia

Dahlias

The Brockton Dahlia Farm is again to the front with the largest and best collection of Dahlias in the United States. All new roots, tagged, and true to name. It will pay you to give me a trial order—try me and see. Catalogue free.

W. P. LOTHROP
East Bridgewater Massachusetts

Kill Dandelions



HERE is a handy tool that will positively eliminate dandelions. One operation drops liquid—kills roots. All metal—strong, durable. Easy to use. Stop back-tiring, unending work by using

IT KILLS
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WEEDS

\$1.00 postpaid. Satisfaction guaranteed. Will kill all kinds of weeds without damaging lawn. We make 40 styles hand and power Auto-Sprays. Write for FREE "Spraying Guide."

E. C. BROWN COMPANY
850 Maple St., Rochester, N. Y.

Bulbs Before July at a Lower Price

I expect to receive my Holland Bulbs this year the same as in the past. I also intend to give a special discount of 10 per cent on all orders that I

receive before July 1st.

I cannot guarantee prices after July 1, but I will endeavor to fill orders and allow the discount up to that time. Prices are likely to be higher in the fall than they are now; therefore send at once for my

New Bulb Catalogue

so that you can secure at reasonable prices Tulips, Daffodils, Hyacinths, Crocuses, and other bulbs for fall planting.

Bertrand H. Farr Wyomissing Nurseries Co.

104 Garfield Avenue
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June is the time to plant Sweet Williams, Japanese Anemones, Gail-lardias, hardy Asters, Chrysanthemums, and Dahlias, for fall flowers. A complete list is given in "Farr's Hardy Plant Specialties." If you do not have a copy write for one.

Snapdragons

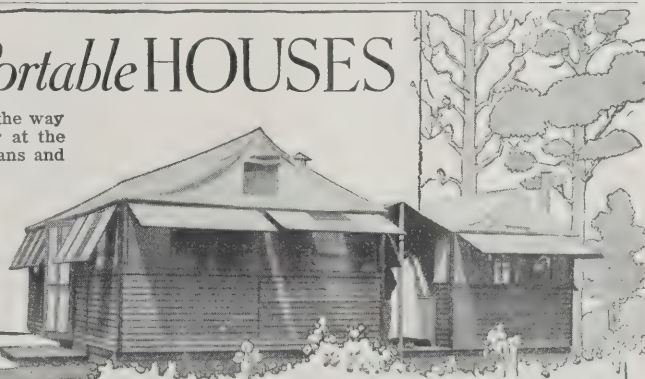
Superb for bedding. Splendid plants; white, pink, yellow, crimson,

\$1.00 per dozen

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Write for a Hodgson Catalog. It points the way to a pleasant summer in the country or at the shore. This book shows photographs, plans and prices of cottages, tent houses, screen houses and lots of other houses. All made in neatly painted sections that can be quickly bolted together by unskilled workmen. Write now for catalog.

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"LILLIAN MOORE"

*The Thousand Dollar Trophy Rose
of the Panama-Pacific-Exposition*

We are now making delivery on strong plants, in pots, for immediate planting in the garden.

\$2.50 plant \$25.00 dozen

We can still supply in 6" pot plants, two year old stock of the following varieties:

GORGEOUS
SCOTT KEY
OPHELIA
HOOSIER BEAUTY
MDM. HERRIOTT
LADY ALICE STANLEY
CLEVELAND
SUNBURST
TIPPERARY

50c plant \$5.00 dozen
\$35.00 hundred

Also a full line of Hardy Chrysanthemum Plants.

Charles H. Totty
Madison New Jersey



COMING EVENTS CLUB & SOCIETY NEWS



Meetings and Lectures in June

(Following dates are meetings unless otherwise specified)

- *Horticultural Society of New York, New York City, N. Y., Peony and Rose Show by announcement.
- *Minnesota Garden Flower Society, St. Paul, Minn., Annual Flower Show by announcement.
- 1. Pasadena, Cal., Horticultural Society.
- 2. New York Botanical Garden, New York City, N. Y. Lecture: Vacant Lot Gardening.
- 2. Lenox, Mass., Garden Club.
- 4. American Rose Society, Arlington Farms, Washington, D. C., Annual Outdoor Meeting.
- 5. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Pleasantville, N. Y.
- 6. Short Hills, N. J., Garden Club.
- 7. Marshfield, Mass., Garden Club.
- 7-8 American Peony Society, Clinton, N. Y. Annual Exhibition.
- †New Bedford, Mass., Horticultural Society. Peony Show.
- 8. Connecticut Horticultural Society, Hartford, Conn. Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
- 9. Dobbs Ferry, N. Y., Horticultural Society.
- New York Botanical Garden, New York City, N. Y. Lecture: Garden Roses.
- 9-10 New York Botanical Garden, New York City, N. Y. Exhibition of Roses and Peonies.
- 11. Park Garden Club, Flushing, L. I.
- Rochester, N. Y., Florist Association.
- New Rochelle, N. Y., Garden Club.
- New York Florists' Club, New York City, N. Y.
- 13. Short Hills, N. J., Garden Club. Rose Show and meeting.
- Lenox, Mass., Horticultural Society.
- Nassau Co. Horticultural Society, Glen Cove, L. I.
- 13-16 ***Pittsburgh Flower Show has been abandoned.
- 14. Garden Club of Alleghany County, Alleghany, Pa.
- 15. Pasadena, Cal., Horticultural Society.
- California Dahlia Society, San Francisco, Cal.
- 16. New York Botanical Garden, New York City, N. Y. Lecture: The Seaweeds of New York and Vicinity.
- 18. Lenox, Mass., Garden Club.
- 20. Short Hills, N. J., Garden Club.
- Rhode Island Horticultural Society, Providence, R. I.
- Tarrytown, N. Y., Horticultural Society.
- 21. Marshfield, Mass., Garden Club.
- 21-22 †New Bedford, Mass., Horticultural Society. Rose Show.
- 22. Connecticut Horticultural Society, Hartford, Conn.
- Dobbs Ferry, N. Y., Horticultural Society.
- New York Botanical Garden, New York City, N. Y. Lecture: Lilies for Everybody.
- 23-24 Massachusetts Horticultural Society, Boston, Mass. Rose, Peony and Strawberry Exhibition.
- 25. Park Garden Club, Flushing, L. I.
- 27. Short Hills, N. J., Garden Club.
- 29. Pasadena, Cal., Horticultural Society.
- 30. New York Botanical Garden, New York City, N. Y. Lecture: The Food Value of Wild Mushrooms.
- †Date subject to change according to the weather.

Organizing a Garden Club

OUR Garden Club in a Western town was the outgrowth of a Literary Club which closed for the year in April. Some of the members wished to continue our meetings through the summer, as a fancy-work club which would mean "gossip." A half dozen flower lovers wanted to have a Garden Club and ask others so inclined outside this literary club, but one dear woman, who was afraid of offending some of her club sisters, thought we ought to ask all those that wanted to come in to do so. We did, and were bored the whole summer by some of them who knew nothing, cared for nothing but the "eats" and the "garden parties." Some made the remark that they cared nothing for it but did not want to be left out of anything. One woman said when we were buying Roses that all she wanted was an old-fashioned yellow Rose. Well I dug one for her, called her, and told her she could have it. She said she would call for it in a day or two, I heeled it in, and it's in the garden yet! So much for trying to help along with beautifying this world. But, on the other hand, out of the twenty, we have at least ten interested women and we do hope to interest others and teach them to love the flowers and the great outdoors. We had such a dry season last year and when others were at the movies, or visiting or motoring, I was

sitting on an old chair in the garden with a hose soaking the flowers and when I was rewarded by beautiful Roses and other flowers the summer, some of the others would raise their eyebrows and say, "Oh, — sent you better Roses than he did us." But he didn't they only had different care.

We have thought it would be nice to have a flower exhibit twice during the year, one with the spring blooming bulbs are at their height and one September 1st when Asters, Gladioli and Roses are showing off.—L. R.

The Friendship Garden Club of Chicago

IT WAS on June 18, 1915, that five enthusiastic women met to talk over their gardens, how to beautify them, make them more intimate, and interest their friends in gardening. They agreed to meet once in two weeks for an all day meeting. The meetings to be held at the homes of the members in turn where luncheon is served. A few weeks later five friends were invited to join the Club limiting the membership to ten, including the Officers, a Garden Mother, a Recorder, and Keeper of the Menu—(Club dues 50 cents a year), each member writes a paper on such subjects as suggested by the leader at previous meeting. Last year each member chose a Flower Family and a Tree Family for special study through the year and each gardener grew one plant in her garden for experiment. The all-day meetings indoors in gardens and in fields are days of satisfying experiences. All work for "The Protection of Our Native Wild Flowers" Society.

Ridgewood, N. J.

THE Garden Club of this place is one of the most prosperous in the state of New Jersey. The following gentlemen form governing board for the current year: C. C. Leisner, president; S. R. Walker, vice-president; J. C. Russell, secretary-treasurer; and R. L. Roe and E. T. Sowter as members of the executive committee.

This club was founded on October 23, 1911, by R. L. Roe, the retiring president.

The members of the club paid a tribute of sincere affection and respect for Messrs. Roe, and Sowter, the retiring secretary, in a suitable resolution.

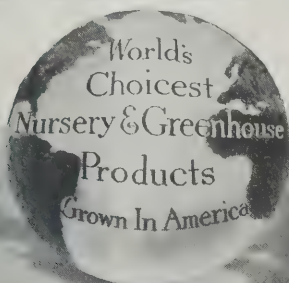
During the course of the meeting W. I. Maier of the Shade Tree Commission entertained the Club with some interesting details in regard to the planting and grading of the new Station Plaza. W. G. Daub gave an enlightening talk on Chrysanthemums. F. Keller related an experience of using fish as a fertilizer. The difficulties he met with before he got his fertilizer into the ground were told in a very humorous manner.

The Club holds annual spring and fall shows where the exhibitions are thrown open to the public, free of charge. The effect of the Club's efforts to beautify Ridgewood bears evidence in the many well kept residences that abound.

American Rose Society

ON JUNE 1 the "Annual Outdoor Meeting" will take place at Washington, D. C. All Rose lovers are invited to attend the inspection of the trials at the Arlington Farms. The National Test Gardens cover two acres, and about 500 varieties will be in bloom.

Bobbink & Atkins



ROSES
ENGLISH IVY
FLOWERING SHRUBS
HARDY OLD FASHION FLOWERS
OUR GIANT FLOWERING MARSHMALLOW
JAPANESE MAPLES AND WISTARIAS
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ORDINARILY, you know, celery is grown in rather wide rows and is banked or boarded up for blanching. There's another way, however, whereby you can grow four or five times as much celery on the same amount of ground. That method is called "The New Celery Culture" and it's the method I follow with the celery that I grow alone, or as a single crop. It is the best and really the only efficient way of growing celery by itself in a small garden where every inch must be made to produce its very most.

The method itself consists simply of having the right kind of soil, making it rich enough to stand close planting and then setting out the proper variety of celery plants eight to ten inches apart in each direction.

My soil is a loose, humus-filled loam, well-tilled. To make it able to stand the close planting, a good fertilizer, analyzing high in ammonia, is applied at the rate of one pound to ten square feet. The fertilizer is in addition to the twenty-odd pounds of manure that has been previously applied and worked well into the soil. The plot of ground allotted to celery is laid off as a bed, five rows wide, so that it can be worked from both sides.

A rather early, self-blanching variety is set out. I grow the **White Plume**, but **Golden Self-Blanching** is equally good. Good thrifty plants are obtained and transplanted on a cloudy day in late June to places that have been marked out for them in the bed. Eight to nine inches apart each way is the best distance to plant, for with this spacing sufficient cultivation can be given and the celery crowds together and blanches itself almost perfectly. If it does not blanch well paper can be wrapped around the rows or the separate plants to aid the whitening process. The celery is not lifted until its full growth has been obtained or until the first light frosts of fall. Then the plants are lifted and stored in the cellar or some place where there is no danger of freezing. They are packed together in an upright position on a layer of a few inches of moist, but not damp, soil and are thus kept perfect nearly all winter.

Last summer in a bed four by thirty feet I grew 176 excellent plants of celery, all white, tender and crisp.

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This is a contribution de luxe to the garden lover's library and is presented as a companion volume and in the same style as the same publishers' "Book of the Rose" (Thomas).

Mrs. Harding has been known as an enthusiastic Peony amateur and has gathered together the essential material concerning her favorite flower, historically, culturally, and critically. The text is accompanied with twenty illustrations in full color and twenty-two in doubletone. The author has called upon other authorities for special contributions, so that the subsidiary matter is authoritative. Her own preferences are given in selective lists and she devotes a reasonable space to the interest of the Tree Peony.

For the convenience of readers, the Editorial Department of THE GARDEN MAGAZINE will be pleased to supply any books that may be desired.



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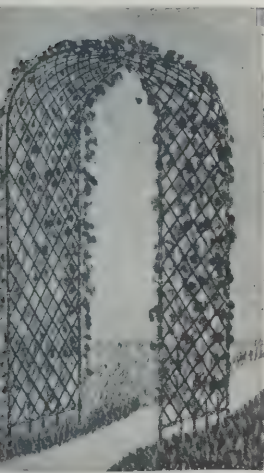
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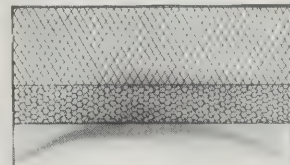
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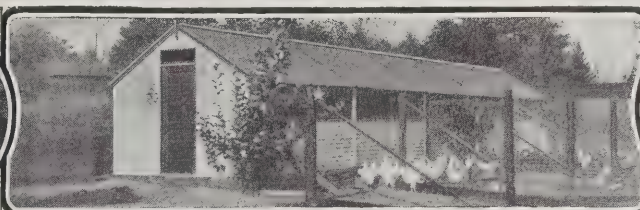


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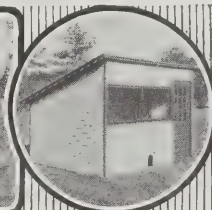
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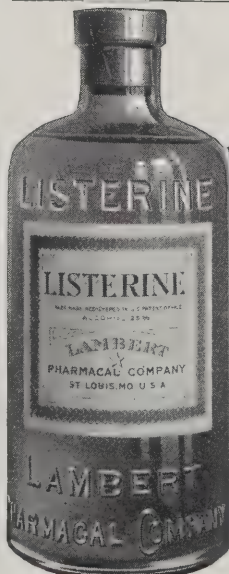


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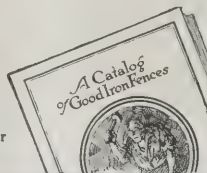
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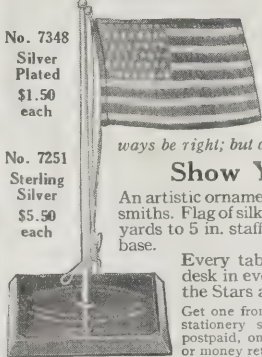
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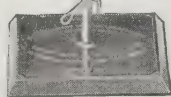


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Vicks' Mikado white, pink, lavender. Crego lavender, white, pink, rose. Vicks' Rochester lavender-pink, white, lavender. Vicks' Branching white, rose, lavender, pink, purple. Lavender, violet, white, crimson and pink King. Lavender Gem, Enchantress Pink, Royal Pink, Royal Purple. Ready for delivery June 1st to July 15th, \$1.25 per 100. **The Oldbrick Farms, Orwell, Ashtabula Co., Ohio**



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FOR THE SOUTH



Pansies can be Grown in the South

UNTIL last year I considered it impossible to grow Giant Pansies in the South. I had always given my plants a seemingly good location; they were invariably planted in a rich, loose soil and generally in a place that grew ideal Roses. This, you will notice is the kind of situation that gardeners—or at least, seedsmen—recommend as suitable. I observed, too, the efforts of neighbor gardeners, and everywhere the result was the same—only weak, scraggly plants, bearing few small and otherwise inferior blossoms were seen. The enormous flowers of the Northern gardens and city parks were unknown here. Consequently, I came to look upon Pansy growing as an art for the few specially favored with congenial climatic conditions. Fortunately, however, during the past season I had cause to change completely my attitude in regard to this subject.

It happened this way. At the back of my garden, right at the base of the wall is a long frame in which I keep over winter fallen Columbine and other perennial seedlings. Last autumn when my plants were set in the frame, I scattered among them a few seeds of a giant strain of Pansy sent to me by a seedsman for trial. The following spring when the plants were set in the perennial border, I noticed that the Pansy seeds had grown into sturdy little bunches of green, and determined to give them full benefit of the shade and moisture afforded by the frame.

As a few days after everything else was removed little vigorous growths shot up from the Pansy seedlings. They appreciated the extra space so much that they grew into a compact mat, requiring thinning. This was done thoroughly, ten inches of space being left between the plants. Then with the showers and warm spring days came the first blossom, the forerunner of the most gorgeous show of colors that I had ever witnessed.

As soon as I saw that the Pansies were really going to make good, I gave them attention. Water as plentiful as rain was given whenever signs of its necessity appeared, and weeds were kept pulled up, and occasional feedings of liquid manure given. As a result of this treatment the display of brilliance was kept up throughout the summer. Even in December, just before the first hard frost I had a profusion of splendid flowers.

I am leaving the frame open this winter having built another one for my young perennials, and have hopes for a Pansy bed of great effectiveness in spring, for I am confident that they can do the "come-back stunt" next spring better than they did the last season.

I am now thoroughly convinced that Pansies can be grown as well in the South as anywhere else, provided a moist and cool location is given them.

Sherman, Miss.

BURFORD REID.

To prevent the peas from attack by spider (really a mite) nothing equals overhead irrigation. The little mites dislike moisture whether of air or on the plants, and will be destroyed by occasional sprayings. The sprayings if copious enough and judiciously applied will aid the pea crop which should be finer in quality than unsprayed peas.

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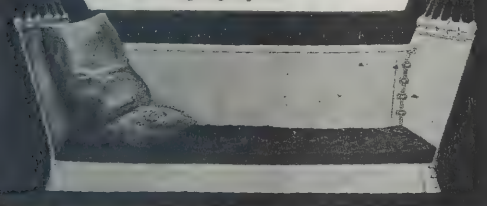
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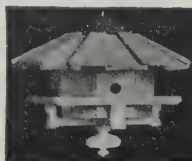


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Makers of Tents and Hammocks for the U. S. Gov't.

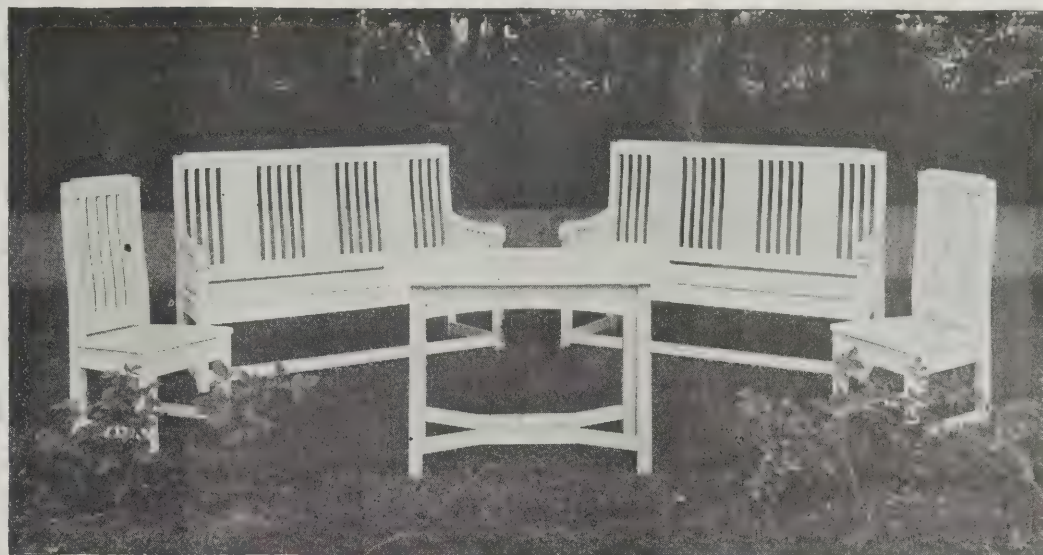
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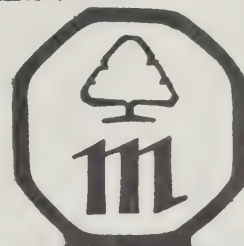
LAST year a garden-lover found a copy of the Gardencraft Handbook on a friend's table. She took it home and studied it—planned her garden with new ideas in mind and then placed her order for two pieces of Mathews Gardencraft. In August she wrote—"My garden is a place transformed. Last year it was simply a garden. Now it is an out-door living-room by day—a bit of fairyland by moonlight. Gardencraft is the good fairy."

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By S. A. Everitt, Treasurer

Sworn to and subscribed before me this 31st day of March, 1917.

(Signed) Albert H. Jennings, Notary Public
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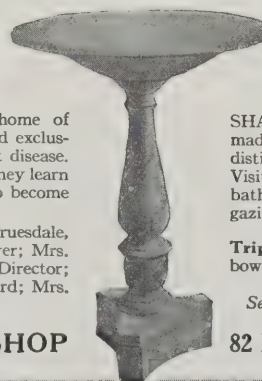
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Bermuda Spice Lily (Amaryllis Johnstoni) has a tenacious vitality. It starts into growth on the least stimulus and produces its showy red flowers when there is no more danger of frost.

If the leaves show much growth before the bloomstalk develops the bulb will be "blind" for that season. The pots may be left in the ground until danger of frost when they should be taken to the cellar and left to dry out. To change from summer to winter blooming, let the pots go over a season in a dry state. For instance, a pot that bloomed in the summer of 1915 was left dry until the fall of 1916, and then bloomed in a sunny window, in living room temperature, about six weeks after it was first watered. After the winter blossoms have faded and the leaves have their growth, the pots may be placed in the cellar in the same way as after the summer blooming season. This is probably not the best way to handle Amaryllis, but it is a convenient way for amateurs with limited facilities.

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The GARDEN MAGAZINE

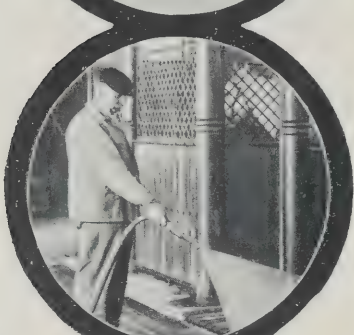
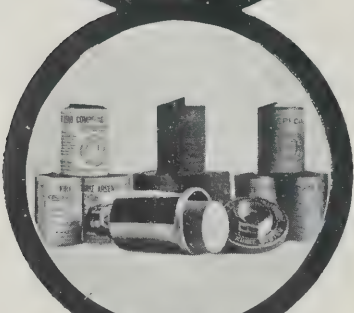
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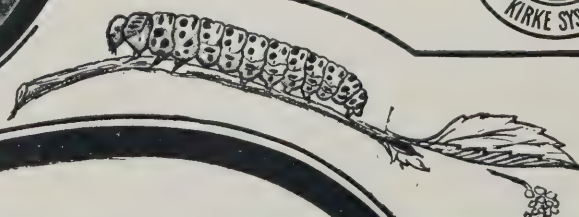
are doing for thousands of satisfied users. They offer a perfect, practicable, clean, odorless method of destroying insects and fungus, of disinfecting kennels and poultry houses, of fertilizing the growing crops. Six preparations are included in our special "War-time Offer" above. Take advantage of this exceptionally liberal offer TO-DAY. Personal checks acceptable. Satisfaction guaranteed. Write to-day—lest the bugs get the best of your garden.

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The Garden Magazine

VOLUME XXV

JULY, 1917

NUMBER 6



AMONG OUR GARDEN NEIGHBORS

Sweet Corn in October!—Perhaps some of the "Neighbors" do not realize that they may enjoy two of the garden's choicest vegetables as late as the second week in October. Last year my family feasted for two weeks on Golden Bantam Corn planted July thirteenth; and October 12th our man picked a peck of peas (First-of-All) from seed planted August 17th. Of course, the peas were a gamble, still we have succeeded both times with peas planted in the middle of August and one feast of them repays fully the small labor of planting. It is necessary to use an early variety. Words fail to describe the corn. We have always considered Golden Bantam the best corn grown, though it seems rather dry at times, but this last late planting is juicy and delicious.—*G. G. Bell, New Rochelle, N. Y.*

A Phonograph Advertises this Flower Shop.—In advertising my Roadside Garden last summer I found a loud-toned phonograph to be an invaluable aid. The machine was placed upon a small table under the maples separating the garden from the road. My little sister (another important auxiliary to the flower shop) found great sport in operating it. The music, mostly loud band selections, attracted the attention of autoists as well as other travelers. They would come into the shade of the trees and stop to hear the Music, after which they generally became interested in the flowers. Not infrequently did people who otherwise would never have stopped take away large purchases of flowers, as a result of the talking machine's use.—*Buford Reid, Arkansas.*

Dahlias Don't Flower?—Some of the Garden Neighbor's in various sections have referred to the failure of their Dahlias in 1916; and I do not know any one here who succeeded with them last year. I had a dozen or more blooms, but most of the buds rotted. In my garden and other gardens that I had an opportunity to observe closely the cause was a pale green creature called, in an old number of THE GARDEN MAGAZINE, the frog hopper or spittle bug. This insect lives on the under sides of the leaves and sucks the life out of the plant. The magazine recommended spraying with whale oil soap or kerosene emulsion, beginning early in the season. I found this information during the winter while looking over some old numbers of THE GARDEN MAGAZINE

and I do not recall what number it was, but I intend to try the remedy.—*Mrs. H. Bruce Rouzer, Minneapolis.*

—Miss Sarah E. Brody (December issue) "has it" on all of us Dahlia fanciers in this part of the world as the plants here were almost a total failure, I having about 75 plants and not a dozen blooms! Even our Gladiolus failed; Nasturtiums too; Pansies and Sweet Peas just dried up because of no rain from June 20th to August 1st—forty days. My young Rose garden, having about seventy-five bushes, was a treat, as it bloomed all summer and fall. I have coldframes full of perennials such as Gaillardias, Pinks, Pansies, Hollyhocks, Carnations, Snapdragons, Asters, Foxgloves,

a worthy object to make the greatest possible use of the Arboretum as a working laboratory for this demonstration which will be under the direction of Mr. Stephen F. Hamblin.

A Simple Way to Plant Potatoes.—The other day I was told about a simple, practical little device in planting potatoes which would suit the man who had only a small area to plant. After the furrow had been plowed, the man came carrying a sack with seed potatoes and had in his hand a water spout wide enough to allow the seed potato to go through. He used this spout as a staff and set it down in the place where he wanted the potato to lodge, and dropped the potato through the spout to this spot. In this simple way he kept the potatoes from running around and without the tiresome effort of every time bending his back got it to lodge in the right place.—*T. Woods Beckman, Altoona, Pa.*

Make More Home Gardens!

"I salute our splendid army of home gardeners. They are fighting Kaiserism along with our troops in France. But we must not sit back and congratulate ourselves. We must begin now to lay our plans to quadruple, or at least triple, that army next year. The battalions of home gardeners will need reserves or fresh recruits, for if in wartime the home garden is a national necessity, in time of peace it will be a valuable national asset."

CARL VROOMAN
Assistant Secretary of Agriculture

Columbine, Coreopsis and Canterbury Bells. I have no greenhouse, but I have a hotbed 3 feet by 16 feet which I start in February. I read the GARDEN MAGAZINE from one end to the other, except about shrubs as outside of Roses I do not care for shrubs. I do not forget you when I buy a seed or plant—I say: "GARDEN MAGAZINE."—*R. Houdek, Illinois.*

School of Plant Material.—Very welcome is the announcement that the rich collections of growing plants in the Arnold Arboretum will be made use of during July and August in a course in "plant materials" offered in the Summer School of Harvard University. The rich amount of material thus available is not generally realized and it is indeed

"Blow-Torch" as a Garden Weapon.—After several seasons of having my squash vines ruined by the big "stink" (gray-black) bugs, during which time I tried in every way to overcome them, I accidentally hit upon a practice that was successful from the start.

"Stink" bugs always appear in colonies, I noted that each colony, at first, confined itself to but part of a hill—even part of one vine—and also that in the early morning each colony would be found clustered on a few leaves, the idea came to me of using fire to destroy them wholesale. I first tried a kerosene-soaked rag on stick torch and it worked very well, except that the flame was too uncontrolled. I then bought a gasoline blow-torch (such as electricians use) and found it worked perfectly. The flame from this torch is concentrated and so hot that a blast or two from it will kill instantly an entire colony and also *bake* the unhatched eggs with no greater injury to the squash vines than the scorching of a few leaves, which seems in no way to check the growth of the vines.

Next year I used the blow-torch on the striped squash bug, also, but in a little more painstaking way, for the striped fellows usually come early and in swarms when they first return from winter quarters, and do their greatest damage while the squash plants are still small. To protect the young plants from any loss of leaves through scorching by the blow-torch flame, I would drop an old pan over the

hill of vines. As the disturbed bugs would come swarming out through a small crack at the pan's edge (left for this purpose) the blow-torch is applied; and gets every one.

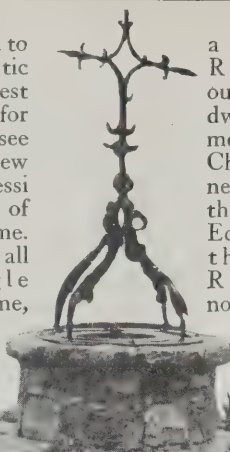
When the striped bugs first appear I go over the squash and other vines every morning for a week, every third day is sufficient for their control during the next two weeks; after which the plants are safe. I have also used this torch to good purpose in killing these striped bugs in the fall, when they sometimes swarm on to ungathered squash in the field. And also on other garden and orchard insects, including the destroying of the nests of the tent caterpillar on small trees or low-down limbs.—*N. Olds, Maryland.*

Edgings for Rockeries.—The article on "Rockery Edges" in your May number reminds me that a correspondent in March asked if any one had tried rock plants for bordering perennial beds. The photograph below showing an Iris border edged with alpines was taken last year in June. The second photograph is of a well surrounded with a rock garden, the mossy stones in this case being sunk more or less flush with the grass. Mrs. Wilder whose delightful book "My Garden" I have just been enjoying, gives a list of rock plants including a number of species of *Dianthus*. As I gather from her book that she has not yet succeeded with *D. alpinus* I am including a photograph showing it in full bloom, I shall be glad to know from Mrs. Wilder where she obtains her seed as she lists a number of plants which I would be glad to add to my collection. Perhaps this autumn, you would care to hear something further of my experience with a rock garden which I can illustrate from snaps taken on the spot.—*F. Cleveland Morgan, Montreal.* [Certainly, let's hear more.—*Ed.*]

An Italian View of our Rose Craft.—The GARDEN MAGAZINE for February has reached me, and I see various requests from readers, so may I make bold to ask for more articles about Roses? It always seems as if they were somewhat neglected in American garden papers, and yet they are perhaps the most reliable flowers for a garden. Where I live—some ten miles outside of Rome toward the Alban Hills—they are almost the only flowers which successfully resist four months of scorching summer wind, with sometimes no rain from May till the end of September, and yet bloom long and well, and I am sure would suit may dry parts of the United States.

Again, why do the American writers almost invariably confine themselves to the *Wichuraiana* Hybrids and *Multiflora* Ramblers for

climbers, and to and phlegmatic Caroline test Laing, etc., for er does one see beautiful new Laurette Mess rarely any of as (unless Mme. riot), and all nating Single Irish Fireflame, of the ne brilliantly



A rock garden surrounding a well. The stones are moss-covered and sunk almost to the grass level

Teas and H. T's. I think many people unduly fear tenderness in summer. I live in the mountains, a climate like central Vermont, where snow often begins in October, and lasts until April—yet I have all these Roses there, and *Bardou* Job on a wall, and three yellow *Banksias* prospered and grew since they were put in four years ago. The usual American article would give one little idea of the variety and beauty of the Rose world. And, lest certain objections be raised, may I hasten to say that they require less trouble. My gardener is fighting, and I know whereof I speak.

Once I subscribed to five American gardening papers, but have deserted all but yours. One wants to know about plants—as you admirable articles by Mr. Wilson, which one hopes will be published separately, and not merely how to make Japanese tea gardens!—*An Italian Reader.*

[There are in fact several "climates" in America and one cannot generalize for the entire country. The *Wichuraiana* Hybrids and other Ramblers find most congenial conditions in those parts of the country where gardening is mostly popular—that is the older, more thickly populated sections. True, much more might be done for Roses, and indeed more is being accomplished in fact than just at present appears on the surface. The American Rose Society has a great field before it, and the official test and demonstration gardens now established in the larger centres of interest will be effective centres from which interest must spread. Until lately we have been entirely dependent on European types of Rose, only some of which are ideally fitted to our climate; but we are now developing our own varieties that fit. Part of the American Rose gardening trouble lies in the trying late winter conditions, when we get clear, bright, dry days with no moisture in the air. The Single Roses do not last long enough for most people, and what color they have bleaches out badly. The *Pernetiana* varieties have a decided tendency to drop their foliage (as well as bleach) except on pure clay soils, which are not universal in America. The series of articles by Mr. E. H. Wilson has been quite recently republished in book form under the title of "Aristocrats of the Garden," price, \$5 net.—*L. B.*]

Double Glass and Other Things—I think everybody is pleased with the new de-

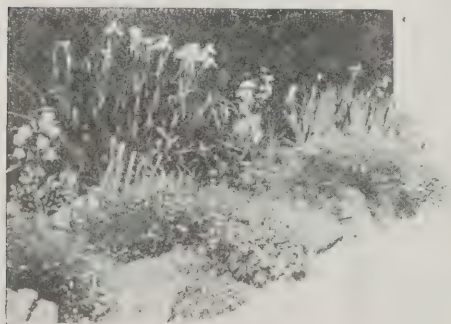
a few stout Roses like out, Mrs. John dwarfs? Nev- mentioned the Chinas (Mme. ney, etc.) and the Pernetian-Edouard Her- those fasci- Roses like not to speak wer and colored

partment, "Garden Neighbors," and the prominent place it is given. Since I began to contribute to it I have increased my flower acquaintance considerably. One letter received asked for more information, another offered some, a third invited me to join a flower society, etc. Let the good work go on! I am too far from Garden City for the proposed lawn party, but shall be interested just the same and might join a club if one grows out of the situation.

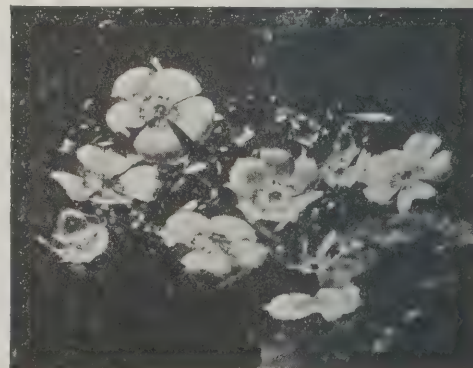
My recent experience with double glass is inspiring. A little bed of *Bellis* Daisies was bright at the close of last season, so I put a wooden frame and glass around it. Then I gathered a bank of leaves and dead plant stems, brought it up a few inches above the edge of the glass and then laid another glass over it. This left a good air space and all I had to do after that was to raise the bank a little

higher and then put on a few pieces of brush to keep everything in place. Deep snow covered the bed most of the winter and when it was gone the plants were as bright as when the glasses were put on and one plant was in blossom. I think I shall in summer try to improve on this primitive protection by setting the glasses in a bottomless box, the upper one probably tilted a few inches, like a hot-bed glass. Then if the weather turns too sunny I can turn the box north to south and shade the plants by the high back of the box during the middle of the day. In winter the banking of leaves could be put on so that quite tender plants could be wintered safely. They tell us that tender plants will freeze through a single glass at a temperature of about 29 degrees, so the double pane will be valuable in summer as in winter. By its help I hope to winter Snapdragons and make sure of Pansies.—*John W. Chamberlin, Buffalo, N. Y.*

Sowing for Second Crop.—I am, with many others of your large family of readers, a garden enthusiast. With much interest I read, from time to time, about sowing for second crop. But my first attempts were dire failures. Each time I acquired fresh knowledge until, the last season, I was successful. About July 20th, after the early peas were cleared away, I sowed two kinds of lettuce—*Big Boston* and *Mignonette*, both head varieties. The seed was sown near the last of a prolonged drouth and therefore laid in the ground before growing, about four weeks—until rain fell. I returned from my vacation near



Iris border edged with alpines



The Alpine Pink (*Dianthus alpinus*) plant, $\frac{1}{2}$ inches high; flowers dark rose with darker ring at eye

September 1st and the leaves of the small plants were about the size of mouse ears. But with good care they grew rapidly.

In October, we were having deliciously crisp heads of Mignonette lettuce. Soon came the early hard frosts but I protected my late Boston by mulching generously with fallen leaves. The added warmth, from this covering seemed to be just what these Bostonians enjoyed, for they not only grew more rapidly but they blanched most beautifully. As a result we had large ivory-yellow heads until nearly December 1st; and this in New York thirty miles from the St. Lawrence.—(Rev.) Otto L. Nichols, Jefferson County, N. Y.

Summer Pruning a Success.—For many years I have been a close follower of the teachings of THE GARDEN MAGAZINE, immediately putting into practice the methods discussed. One of my most successful efforts was summer pruning of fruit trees (the way is told at length in issue for July, 1913). Nearly all the trees in (5-year apples, pears, plums) started into vigorous bearing the very next year. There was only one drawback: the trees being so young the branches were not strong enough to



This is the crop of fruit borne on a 5-year Damson plum after pruning. Its first crop about 2½ bu.

carry the loads of fruit, and needed much propping up [a severe thinning, as advocated in last month's GARDEN MAGAZINE would have been better—Ed.]. One Burbank plum bore between three and four bushels of fruit—its previous crop was three quarts!—T. S., Orange Co., N. Y.

The Flowers in Spring.—Just a word Mr. Editor, to you, and I hope to the "Garden Neighbors." We have taken the GARDEN MAGAZINE since '02 but it has often been too popularized to be of any real interest. Slowly, however, you have developed popular interest to the point when your excellent articles of today can find general appreciation and this latest correspondence page will I feel sure, prove most helpful. A word to your readers:

I hope that A. E. Thatcher (page 161) may try Harison's Yellow Rose and the orange Austrian Copper, both lovely, and with me they have withstood 18 degrees below zero, so that they should prove hardy. The latter, however, has not made as large a bush.

The recent mention of Delphinium Zalil in these pages brings to mind D. nudicaule or perhaps it is cardinale. I have it in a well-drained place in the open sun and though it is clearly a rockery plant, its clear orange-scarlet is delightful, particularly with the lavender of the wild Campanula rotundifolia.

Spring is upon us as I write and I have been delighting in the vivid Bulbocodium that has really established itself. Nearby are yellow Winter Aconites, a startling "combine" but pleasing at this season. The delicate lavender of Crocus Tomasianus is also nice, and the fat buds of Iris reticulata show purple; the purple young growth and half opened Anemone stellata are fascinating, but best of all Iris histrioides has pulled through the winter and to-morrow I shall probably be disappointed in my first sight of this wee lavender flower. The Waterlily Tulip is almost out, and the clustered buds of T. biflora, a similar color, and of linifolia (almost a miniature T. Gesneriana) look promising.—R. S. Sturtevant, Wellesley Farms, Mass., April 4.

A Vine for Quick Effects.—The accompanying photograph of a rustic pergola covered with Moon Vines was taken July 1st, 1916, and is offered to The Garden Neighbors as an illustration of what can be done in a short time. Not having any shade we built this shelter out of poles and planted the Moon Vine some time in May. I have been taking THE GARDEN MAGAZINE for about ten years and would not do without it.—H. B. Shawen, Virginia.

Mr. Wilson in Japan.—Under date of March 26th, Mr. E. H. Wilson, who is now travelling in Japan and Korea, writes to us that he "had an interesting and enjoyable trip to the Linkin Islands, and collected quite a lot of specimens and much information. The winter has been exceptionally cold in Japan and the spring is late. The cherry trees will not be in blossom until the middle of April."

The Title Page and Index to Contents of Volume XXV, which concludes with this issue, is ready and will be sent gratis to subscribers on request; or subscribers' copies can be returned to us and will be bound in cloth with index for \$1.25.



Something like Jack's beanstalk! Moon Vine arbor three months after planting the seeds

THE MONTH'S REMINDER

These directions apply generally to the latitude of New York; due allowance must be made, earlier for the South and later for the North. Approximately 100 miles of latitude equal a difference of a week

NOW is the time when the honor winners of the General Army of Defense, Home Garden Division, will begin to show up in the ranks. The easy part of the work has been done, and the sentimentalists and the slackers are ready to quit. But those who will keep up the work, and see their gardens through, will deserve this year to be doubly rewarded—and what is more, they will be!

Stick to your garden to the end this season, even if it is your first garden, and full of mistakes. If your conditions are at all favorable, you can hardly fail to get enough to pay well for the effort expended. And the experience will be of even greater value in helping you in the future: for the food problem is not likely to be less urgent for the next year or so, even if the war should be brought to an end in a few months.

KEEP RAISING THE DUST!

STILL first and foremost in this month's activities is keeping every thing you have growing, growing as well as you can grow

it! That means no compromise when it comes to the matter of cultivation.

*Keep the wheel-hoe going
To keep your garden growing!*

The only time to stop cultivating all the space between rows, is when you can no longer get through—but remember that when there is no longer room for the wheelhoe, you can still break the crust, and keep the dirt mulch established almost as quickly with a scuffle or "slide" hoe. We have repeated the old rule—"cultivate after every rain, and every ten days or so if it doesn't rain"—many times. But it is still as good to follow as it ever was.

STILL TIME TO EAT THIS WINTER

VEGETABLES—ordinary plain stored "roots," not "fresh" stuff from Florida—are not going to be any joke this winter. Everytime you want any extra vegetables for dinner, or even for stock for a war-time vegetable soup, it will make a hole big enough to see through in the week's table budget. Don't let any ground lie idle that you can use now

for the growing of beets, carrots, rutabagas, or turnips, but provide to make a full planting of these things at once. Many people are not aware of the fact that these things are of very much better table quality if not planted until so late that they have just time to develop nicely, attain a fair but not full size, and without being allowed to reach full maturity before being harvested. They are then much more like the tasty vegetables you are used to having from your garden in spring and summer, than the tough unpalatable things you usually get when buying the large, coarse, and fibrous "roots" one generally finds in the markets during the winter months. The market gardener plants earlier than this because he is chiefly interested in big yields; but for your own use, where high quality is as important as yield, later planting is advisable.

TRANSPLANT FOR FALL AND WINTER

LATE cabbage, cauliflower, Brussels sprouts, kale, and celery should all be set in their permanent places this month,

transplanting them from the seed bed as soon as they are large enough. If plants were not started in anticipation they may be obtained, usually at a very low price, from a market gardener, or got from a neighbor. Don't make the mistake, which many beginners do, of thinking that you must have a *late variety* because it is wanted for late use—quite the contrary an early variety is better because it matures sooner. For the home garden the medium earlier, smaller sorts are more satisfactory in every way. Volga, All-head Early, and Danish Ballhead are good sorts. They can be planted much closer than the large spreading late varieties such as Autumn Giant or Worldbeater, are more certain to make good solid heads, and much more convenient to store and to use.

The "savoy" type, is however the finest flavored of all. Put out a generous supply of Brussels sprouts and kale. Both are perfectly hardy, and you can continue to use them right out of your garden as long as they last, even if you have to wade through the snow to get them for your Christmas dinner!

When setting out your celery plants, keep in mind that they are about the hungriest of any plants that grow, and for good crisp fat stalks, such as you will be proud to have on the table for Thanksgiving, you must feed them bountifully. Even if the soil where they are to be put was well manured and enriched in the spring, give extra fertilizing in the furrows before setting the plants, in the form of bone dust and hen manure or sheep manure, and a little sprinkling of nitrate of soda, of course mixing these thoroughly with the soil before setting the plants, which should be pretty severely trimmed back before planting. Flood the trench full of water and let it soak away a couple of times just before planting if the soil is dry; celery is one of the water-loving vegetables, and can hardly be given too much on a well-drained soil. Set the little plants very firmly, about six inches apart, being careful not to get any soil over the centres or crowns, where the new leaves are pushing up. If a few old boards are available they may readily be placed on edge along the row, at a slight angle, and supported by small stakes, to shade the newly set plants for a few days; this will aid materially in getting them started.

DON'T CROWD OUT NEXT YEAR'S FLOWERS

WHILE we are all, rightly, interested in growing as many vegetables as possible this year, there is no occasion to neglect devoting the little time and space necessary for starting a generous supply of flowers for next year. A single frame, three by six feet, or an equivalent space in some sheltered spot, free from the "drip" of any building or tree, but where it can be shaded from the hot sun is enough to start all the seedlings any ordinary garden is likely to require. Let the soil for this little seedbed be the finest and spongiest you can get. Old compost from a hotbed or coldframe, carefully sifted is excellent; or you can mix humus and a little sand, and get an excellent surface soil for sowing the finest of seeds, which is clean and free from weed seeds and disease germs.

Pansies, English Daisies (*Bellis perennis*), Forget-me-not and a long list of the hardy perennials, such as Columbines, Pinks, Sweet Williams, Foxglove, etc., etc., are available for starting now. A dollar's worth of seed will give you all the plants you are likely to be able to find room for—and plenty to give

away besides! Prepare the seed bed carefully, and water it down thoroughly, so that it is soaked through and through, and as soon as it is dry enough plant, barely covering from sight the smaller seeds. Newspapers or sphagnum moss laid over the surface for a few days after planting will help to keep the soil moist and cool immediately about the seeds, but careful watch must be kept so that the covers are removed immediately on the first sign of germination. To get good sturdy plants for transplanting in the fall, either transplant or thin out the little seedlings just as soon as they are large enough; otherwise they will very soon begin to crowd, and be permanently weakened.

KEEP AFTER THE BUGS AND BLIGHTS!

NO MATTER how good a grower a gardener may be, unless he is also a good fighter he is likely to see much of the results of his labor go for naught at this time of the year as a result of the annual invasion of insects and plant diseases. You must both be

DO THIS MONTH

1. Keep on cultivating.
2. Plant root crops for winter use.
3. Transplant for fall and winter.
4. Make first sowing of perennials and biennials for winter use.
5. Keep after the bugs and blights.
6. Prune Rambler Roses after flowering.
7. Prune early-flowering shrubs after flowering.
8. Keep the lawn in condition for dry weather.
9. Get ready for the new strawberry bed.
10. Plant for canning, drying and preserving.
11. Undertake new improvements.
12. Send on your bulb order.
13. Send on your order for evergreens.
14. Do a little visiting 'round.
15. Join your local Garden Club.



The southern gardener will read the special article on another page.

on the watch for troubles of this kind, so as to be able to detect them at the very earliest moment, and ready to act, so that you can do whatever should be done to combat or prevent them, at once. That, "in a nutshell," is the secret of being able to protect your plants. Elsewhere in this issue detailed information about bugs, diseases, worms, sprayers, sprays, and powders is given. Don't wait until the trouble is upon your head; get busy now, provide yourself with the things you are likely to need, and make yourself familiar with how to use them. GET BUSY—NOW!

PRUNE RAMBLERS AND EARLY FLOWERING SHRUBS NOW

AS SOON as the flower-clusters have gone by on the hardy Ramblers and other similar late-flowering Roses is the best time to prune them. The fading flower clusters are no ornament; and one can see now, better than at any time later, what wood it will be best to cut away, and how the plant should be developed for another season's bloom, the growth for which will be made this year. The older canes, which have ceased to flower freely, should be cut away back to or near the ground, and removed to make room for new growth, which will quickly take its place. If this is done now, the plant will be as graceful and symmetrical as ever for next season; but if it is left until fall or spring a very unattractive looking plant is pretty sure to be the result.

The shrubs which have flowered during spring and early summer are now making their new growth, on which next year's flower buds will be developed before winter. They must be pruned now, so that any "holes" left by

cutting out old wood may be filled up; and the new growth may be guided to make an even and symmetrical plant. But do not go to the opposite extreme and prune and head in until all the natural beauty and grace of the shrub has been lost, and you have but a stiff, ugly "specimen" that is about as attractive as a rag-wound thumb at a card party. As a general rule for the decorative and flowering shrubs, the less pruning the better, so long as old or injured wood is removed, wandering growths are made to conform to the plant's general contour, and too much crowding at the centre is prevented.

STRAWBERRIES AND CREAM—GET READY NOW!

THE old saying that "all things come to him who waits" surely was not meant to apply to the man who waits for a strawberry bed; for if you would have berries next June, you must begin to get busy now—and that will be getting them in shorter time than most people do). Potted plants set out this month or early next month will bear a full crop of the very biggest berries they are capable of producing next June, if they are given the proper attention. The first step is to have the soil rich and in good shape (The plants can be bought, if you are not growing your own, as suggested in last month's reminder). Avoid soil that has been in sod within a year, as it is likely to be infested with white grubs—the larvae of the "June bugs"—which are one of the strawberry's worst enemies, frequently ruining new plantings. Select a place where the strawberry rows will not be in the way of your other garden operations, if possible; but they must have good rich soil to do well. Spade it up and manure or fertilize it now, even though you will not be ready to plant for a few weeks yet; this will get rid of one crop of weeds, save the moisture in the soil, and enable the plants to get a quicker start when you do put them in.

CONSERVATION IN THE WAR GARDEN

HAVE you made provision to utilize everything that your garden produces this summer and fall? If not, your war garden, no matter how carefully cultivated, is not a complete success. Down to the last ounce, all the food produced should be used. Cans and jars will be scarce this year, if obtainable at all. Have you made yourself familiar with the processes of drying or evaporating, or "dehydrating?" Many vegetables and most fruits can be kept as well this way as by canning, and with much less work. Look into these things, and plan ahead, so that nothing will go to waste. Not only that, see to it that some organized effort is made, in your town or city, to look after this same problem in connection with the hundreds of new gardens there are there. Next month THE GARDEN MAGAZINE will have some suggestions for the carrying out of this work. Watch for them; or if you want to get started at once, write to our Readers' Service Department for advance information.

ARE YOUR BULB AND SHRUB ORDERS READY?

REMEMBER that the war won't last forever. Plant evergreens this fall if you had been intending to; and also bulbs for spring bloom. These are among the things that haven't gone up in price—in fact, you are pretty sure to get better value than usual, as the demand is likely to be light. Profit by the "psychological condition" and get in your own order in good season.

THE PATRIOTIC GARDEN

SOMEBODY HAS TO RAISE EVERYTHING YOU EAT

July. Planting for Succession and Winter Supply

AT LEAST GROW SOME OF YOUR WINTER SUPPLY

MAKE YOUR GROUND WORK FOR THE FAMILY & NATION

Directions as to time given in these columns apply generally to
ifally otherwise mentioned allow a difference of about a week earlier or later for each hundred miles south or north, as the case may be

the latitude of New York as a standard. Except where spec-

JULY is truly the turning point in the campaign of the garden. Nearly everything is then either at its best, or is exhausted and ready to make room for other crops. Much space is really available—between the rows of crops now reaching eatable size—for further planting. Look at the early rows of beans, beets, carrots, lettuce, onions from sets, radishes, etc.; some will soon become exhausted. Why wait? Transplant plants from crowded rows into the paths between the rows. By the time these transplanted plants have taken root and begin to spread those of the old row are “gone” and you have new rows developed in position.

Bringing Up the Supports

Onions growing from seeds require special care. Keep the rows free from weeds. Once a week scatter wood ashes or a “complete fertilizer” along the rows and work it into the soil. If rain is lacking, irrigate! Onions are one of the most profitable of garden crops. At present prices, a crate of onions stored for winter use is worth all the work required to grow them.

Beans planted last month will be ready for the first “hilling” this month. Do not work over the young plants when the leaves are wet with rain or dew. It spreads blight and cur-tails the crop.

If cucumber vines run rampantly—pinch back. It does not curtail the bearing power of the vines, but encourages more rapid development of fruits already “set.”

The tomato is really a rank growing weed. Plants need staking and pruning during the first part of July or when about two feet high and two feet across. For full directions as to staking and pruning, consult THE GARDEN MAGAZINE for July 1912. Splendid plants may yet be made from branches and “suckers” removed in pruning. Just stick a cut-off branch in the ground and it will root promptly. Very profitable crops may yet be secured from plants started thus, of early kinds like Earliana, June Pink, Chalk’s Jewel, Bonny Best, Globe, Magnus and Beauty. Later varieties are apt to be caught by early frosts.

In starting and managing the July garden two things are of paramount importance, viz.: induce prompt germination by firming the soil well over seeds; and encourage rapid growth by frequent cultivation and seasonable irrigation.

July Garden—A Goldmine

THESE things there are to be done: (1) Start-ing a mid-season garden at the beginning. (2) Continuing the early garden by making succession sowings. (3) Coaxing all the crops

The Seed Necessity for 1918

We have given most of our attention to discussing the present production of food. There is another vital necessity—seed for next year. A critical situation has developed for the seedsmen of America—and consequently for the world. For the world war has made us the world’s custodian of these precious germs.

Following the President’s appeal and the subsequent nation-wide movement for more gardens, an unprecedented demand arose for seeds of all kinds. There were enough seeds of most vegetables to supply the demand. But a shortage akin to famine in seeds of biennial vegetables developed.

Biennial vegetables are those that require two years to produce seeds from seeds sown. From seeds sown this year, the vegetables are harvested by fall, stored in pits or cellars, planted again the next spring, and the seeds are gathered late in the summer or in early fall. This group of vegetables includes such staples as beets, carrots, the entire cabbage family (brussels sprouts, cabbage, cauliflower, etc.), leeks, onions, parsnips, rutabagas, turnips, and some others of less importance.

Up to fall of 1914, Europe supplied us with nearly 75 per cent. of the seeds of all these plants excepting onions and beets. Carrot seeds come from France and Germany; cabbage and cauliflower seeds from Denmark and Holland; turnips, rutabagas, etc., from England and other countries. Suddenly in the spring of 1915, the seed growers of those countries found themselves confronted by the necessity of conserving their seed stocks, and even of securing additional supplies from elsewhere. Many of the roots stored to produce the seed crops of the following year were used for food, or destroyed.

It is to the credit of American seedsmen that they did their “bit” three years ago to offset the situation now confronting us. In August, 1914, a group of wholesale seedsmen gathered in New York City to “take stock” of the Nation’s needs. Supplies of all biennial vegetable seeds were immediately supplemented by contracts abroad. In the fall of 1914, America had a three-year seed supply of all the important vegetables of this kind.

In the meantime, values of American farm staples—corn, potatoes, wheat, etc.—soared, and so did the aspirations of the American farmers who grow the seeds of these crops. The ever-present temptation to sacrifice future rewards and ideals for the sake of immediate returns proved too great and the seed stock dwindled.

With farm products selling at highest prices ever heard of, and his mind full of speculative ideas, Mr. Average Farmer does not care to consider seed contracts that fix a price in advance for the seed crop to be harvested a year hence. Yet, with France clamoring for tons of carrot and beet seeds and our own needs greater than ever before, American seedsmen and seed-growers have to assume the responsibility of providing seeds for the world.

In attempting to do this, the leaders of the movement may find themselves handicapped by the lack of interest and knowledge—lack of interest on the part of capital, whose aid is required to see the country through the crisis; lack of knowledge on the part of the farmer who is willing to undertake the work.

A proper meeting of this situation would help America a long way toward fulfilling her obligations to her allies and the world at large; it would also help her along the road to that leadership in seed production for which her natural resources are unrivaled. As to “skill available” let the seedsmen call on those most expert seed-growers in the world—the American market gardeners!

An Eleventh-hour Call

July presents the last chance in 1917 to market gardeners to rally to the flag, to perform a patriotic duty by coming to the rescue of a precarious situation. All space available this month should be sown to early maturing kinds of beets, carrots, turnips, and any other “biennial” crops that will produce roots large enough for planting out next spring. Sacrifice immediate returns on these crops; store them to be planted in spring for seed crop.

Few investments will bear bigger interests, few things that our market gardeners can do will benefit the country more. Unless all signs fail, the prices obtainable in 1918 for skillfully grown seeds of the kinds of vegetables named above will reach just as high new levels as food products maintain at present.

to quicker maturity and heavier bearing by frequent cultivation, timely fertilizing and occasional irrigation.

Everything planted in any early garden can still be started in the July garden (except late limas and pole beans, sweet corn requiring longer than eighty days to reach roasting ear stage, late sorts of eggplant, pepper, pumpkin, and squash.

You can still grow lots of ripe tomatoes if you secure May-started plants of Sparks’ Earliana, Chalk’s Jewel, Livingston’s Globe or Red Sunrise.

The coming of cool nights in August and cool days in September makes practical July planting of such “cool” season crops as lettuce, peas and spinach. The very varieties that were planted in early spring are again the order of the day, because weather conditions in early fall and spring are similar, with the comparative results from spring or fall gardens strongly in favor of fall gardens!

The Way to Start the New Garden

SUCCESS or failure with July planted gardens is largely determined by the condition of the soil, and the method of sowing the seeds. In most cases the soil is in ideal condition—warm, mellow, with all the annual and surface weeds killed by previous cultivations or spaded or plowed under so deeply that they have no chance to do further harm.

If the soil is dry (as is usual, soak thoroughly with water the day before you expect to plant. If time or circumstance do not permit this, the handicap may be partly overcome by sowing seeds deeper—twice as deep as before: or say, beets and radishes one half inch; lettuce, endive, carrots, and other fine-seeded classes, one quarter inch; beans, peas and corn three to four inches. It all depends on the nature of your soil, of course; the lighter the soil the deeper to sow.

Decide which vegetables you want from August first until frost. For sowing early in the month are beans, beets, carrots, endive, kale, kohlrabi, lettuce, peas, radishes, spinach, turnips and rutabagas. By setting out plants, you can provide cabbage, cauliflower, celery, celeriac, and tomatoes.

GATHERING THE HARVEST

Supposing you sow, during the first week of this month, two fifteen-foot rows each of the dozen vegetables that will yield crops from seeds before frost. Here is the way in which returns should come in:

Beans. Red Valentine, ready between August 25th and September 1st; Bountiful, between September 1st and 5th. First picking per 30 foot of row should yield two quarts of pods.

Beets. Faust’s Early Crimson ready in fifty-five days, Eclipse, 60 days, Crosby’s, 62 days; Detroit Dark Red, 65 days. **Carrots.** Oxheart, 55 days; Chantenay, 60 days; Danvers, 70 days.

Endive. Any kind, 65-75 days.
Kale. Dwarf Scotch, 75 days.
Kohlrabi. White Vienna, 60 days.
Lettuce. Black Seeded Simpson, 50 days; Wayahead, 55 days; All Season, 60 days; Iceberg and New York, 60-65 days.
Peas. Little Marvel, 60 days; Thomas Laxton, 70-75 days.
Radishes. Icicle, 30-35 days; Charters and White Lady Finger, 40-45 days; California Mammoth Winter, 70 days.
Spinach. Victoria, 45-50 days; Long Season or Triumph, 55-60 days.
Turnips. Purple Top and White Milan, 45-50 days; Purple Top Strap Leaf, 65-75 days. *Rutabaga,* American Purple Top, 75-80 days; Monarch or Elephant, 85-90 days.

"Taking Stock" of the Early Garden

WHERE economy in space is a factor it pays at this time to look over each row critically, asking yourself (1) Has it yielded the bulk of the crop? (2) What is it likely to yield from now on? Put aside all sentimental reasons in answering these questions. *If returns from now on are apt to be scant; or, if only a poor stand was secured, pull up or hoe out the row without regrets and plant it to something assuring full returns from every inch of row between now and frost.* For illustration, the middle of the month, some of the rows of early-planted beans will have yielded most of their pods; then pull them up, rake the ground level and sow beets, carrots, turnips or any other root crops for winter storage.

Intrenching for Winter

AFTER all, the important thing from now onward is: how much of the harvest can you save and store for use next winter? Let that be your guiding thought when deciding on July plantings. Late kinds of celery and cabbage keep better than early kinds, but also require a longer season to grow; when setting out plants, keep in mind that it may be necessary to protect them against severe frosts in the fall and do not plant them as far apart as you would ordinarily so that it will be easier to cover them.

Of the root crops, parsnips may be left out in the garden all winter—under cover, of course. Turnips and rutabagas may be stored like potatoes in a cool cellar. Beets, carrots and salsify require a covering of soil or sand, otherwise they will shrivel badly and lose their usefulness for any purposes.

Advancing the Reserves.

YOU may still gather cabbage, cauliflower, celery and celeriac crops if you start with plants of sufficient size and age to reach maturity in 80 to 90 days. The age of the plants really matters more than the size, and one of the best ways to judge age is by the roots. See that you buy strong roots rather than big tops. If you can find from your plant source when seeds to produce these plants were sown, so much the better.

Cabbages that will mature before frost from seeds sown not later than May 15th are Surehead, Premium Flat Dutch and Danish Ballhead. The last named requires a strong, heavy clay soil to do well, so, if your garden soil is rather light, depend on the other two. Of red cabbage Danish Round Red is a particularly good keeper and is well liked for "slaw" in some sections.

Cauliflower must have an abundance of moisture to do well. Unless you are willing to irrigate during July and August you are courting failure. Either Snowball or Dry Weather are satisfactory sorts for pickling and winter use.

Celery. See that the plants have fine bunches of fibrous roots. Trim off about an inch of both top and roots before setting out. It stimulates the root system and prevents excessive wilting of the tops. Celery is another

crop requiring an abundance of moisture. Set the plants in rows three feet apart, six inches apart in the row. Hill or board up to blanch properly. Golden Self Blanching, New Easy Blanching for early use and Winter Queen or Giant Pascal for later will measure up to all quality requirements.

Celeriac is a turnip-rooted form of celery offering an unexcelled flavor for soups and salads. A detailed article on this fine root crop will be found on page 231, June GARDEN MAGAZINE.

Recruiting New Forces

HERE is a programme of varieties for present sowing which will yield fully:

Beans. Dwarf or bush kinds of earliest maturity only. Hopkins's strain of Red Valentine may be sown up to July 15th, because it has the unusual record of bearing pods in 55 days from date of planting. Since the average first frost is September 20th, Red Valentine, from seeds sown middle of this month, will bear the bulk of its pods before cold "nips" the plants.

During the first week in July sow either Bountiful, Full Measure or Burpee's Stringless among the green-podded, or New Kidney Wax and Sure Crop Wax among the yellow-podded kinds. Figuring on a light and a heavy picking before frost, you may count on three quarts of pods from every fifteen feet of row between September 1st and frost.

Beets. The first week in July sees the last chance to plant the exceptionally good winter keeping variety Long Smooth Blood. After that, and up to July 20th, sow either Faust's Early Crimson, Eclipse, Crosby's Egyptian or Detroit Dark Red. All these reach good size (2½ to 3 inches in diameter) by fall. In exceptional cases Faust's has reached the desirable two inch size for canning by September 20th from seeds sown the first of August. But to do that, prompt germination must be provided by pressing the seeds into firm contact with the soil and by providing moisture through irrigation whenever the natural supply fails.

Carrots. Make liberal provisions this month to sow carrots for winter storage as they are one of the most wholesome foods for that purpose. Both, Chantenay and Danvers Half Long will grow to be six inches long by 2½ inches in diameter at the crown from seeds sown up to July 15th. Carrots are not injured by the first light frosts and often thrive outdoors until the middle of October.

Corn. Keep in mind that few sorts yield ears in less than 85 days. Do the country a patriotic service by devoting July 4th to sowing either Early Mayflower, Peep O'Day, or Golden Bantam in rows, 2½ feet apart, plants a foot apart in row. This will spell sweet corn independence till frost. When gathering the first ears, don't pull upward but give a quick downward twist. Pulling disturbs the feeding roots on which depend the development of further ears on the stalk.

Cucumbers. Still time to provide pickles if you sow such extra early varieties, as White Spine, Cool and Crisp or Klondyke. These will reach the desirable three to four-inch size by the middle of September if you water the hills occasionally with liquid manure. Take a shovelful of well rotted cow or sheep manure to a gallon of water, let it stand for a few days and give each hill a quart twice a week. It'll work wonders!

Endive. Few people appreciate that properly blanched, handled and stored endive will keep quite as well as celery! Early White Curled sown during the first week in July will form large bunches by end of September. It stands considerable frost without injury—not unlike lettuce. Tie up plants in cones, to help blanch centre. Store just like celery—either cover the rows with dry leaves and boards or transfer to coldframe.

Kohlrabi. You can grow this delicious turnip-rooted cabbage (fully described on page 231, June GARDEN MAGAZINE) to eatable size in 60 days from sowing seeds if you sow either White or Purple Vienna. Kohlrabi is quite hardy, will continue to develop up to hard frosts and keeps as well as turnips.

Lettuce. Up to the middle of the month sow heat-resisting mid-season sorts like All Season Butterhead and Iceberg Crisphead. Between July 15th and 30th, sow Naumburger or Tenderheart, Black Seeded Tennisball or Big Boston. All these should be transplanted promptly as often as plants crowd each other in rows. Any of these sorts will stand considerable cold weather if afforded the slight protection of dry leaves or grass clippings or coarse straw.

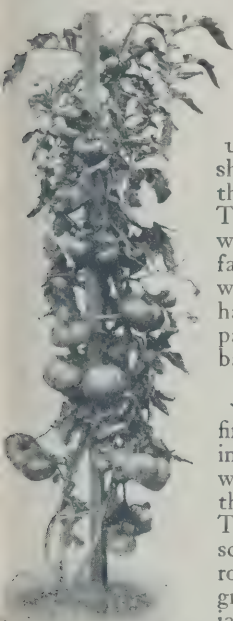
Peas. While midsummer sown peas will not yield the same quantities of pods as spring sown seeds, yet July sowings of this delicious vegetable prove well worth while. Select heavy bearing, quickly maturing sorts like Sutton's Excelsior, Thomas Laxton or Little Marvel. All will perfect pods by September 25th from seeds sown up to July 10th—not later! You can plant Pedigree Extra Early as late as August 1st, but you should not expect the quality of the sorts mentioned above in this or any other smooth-seeded variety.

Pumpkins. If your early corn patch is of fair proportion (not less than 50 feet square) put a few seeds of Livingston's Pie Pumpkin or Winter Luxury Squash in every third row after you cultivate the patch for the last time, but not later than July 10th. This particular type develops rapidly, is of unequalled quality and when carefully handled and stored the pumpkins keep well until midwinter.

Radishes. Between July 1st and 15th, sow White Strasburg, California Winter, and Black Spanish for winter use. These grow to large size and should be "thinned" to stand six inches apart in the row. Their flesh being of remarkably firm texture, they keep remarkably well, stored in boxes with dry sand or soil. After the middle of the month and up to July 30th sow Icicle, Cincinnati Market, Charters and Lady Finger. While all these develop rapidly, they withstand heat remarkably well during August and will be in fine condition in September.

Turnips and Rutabagas. Any time during the first week in July, sow Swedish turnips or rutabagas for winter use. They require a longer time than the ordinary turnips in which to reach good size, but they have much firmer flesh and keep as well as potatoes. American Purple Top, Yellow Aberdeen and Monarch or Elephant are splendidly flavored kinds. All should be thinned out to stand at least six inches apart in rows. Up to July 20th Purple Top Strap Leaf, Amber Globe and White Globe turnips may be sown for early winter and late fall use. Generally about this time, some of the early plantings of bush beans have yielded the bulk of the crop. Pull them up, level the ridges and sow these kinds very thinly, later transplanting seedlings to stand four inches apart. This is an ideal succession.

★ THERE'S no question that the various IRRIGATION SYSTEMS are wonderful adjuncts in gardening. No home garden should be without one. But where one has not been installed the next best thing is the garden rake! With this the surface can easily be kept loose so that moisture cannot escape as rapidly from the soil as if there were a crust. It is important to go over the ground every week to maintain this dust mulch and to break up every crust that results from each rain shower if enough to puddle the immediate surface. The time to do this latter work is just when the surface begins to lose that wet condition which if handled would result in pasty lumps that would bake hard in the sun.



The efficient way of growing tomatoes: three stalks trained to a stake

★ YOU want LOTS OF CUCUMBERS and summer squashes, eh? Try this method: As soon as each fruit has reached edible size, gather it. If you can't use it give it away or even throw it away! At any rate, don't let it ripen—unless you want the vine to stop producing because of its making seed. You see, the plant's one aim is seed production. So, as soon as it has made a good advance toward maturing a fruit it draws all its energies from other flowers and little fruits which may drop off or if they do continue to develop they are either late or

“He Also Fights Who Helps a Fighter Fight”—Herbert C. Hoover

inferior. This same rule would apply to many other plants—eggplant, pepper, okra, etc.—whose fruits we use in the immature state, but usually these plants are killed by frost in northern parts of the country.

★ FIGURE ahead! The middle of July will see the early sowings of beets, lettuce, radish, onions from sets, spinach and many other extra early “short season” crops exhausted. Therefore the first part of July is the proper time to provide succession crops for the space that will become available. Sow *between* the “old” rows, or set out additional plants. In the case of rows which are nearly exhausted, it pays well to pull up the old plants and replant the rows at once to vegetables not akin to those which grew in the same row before.

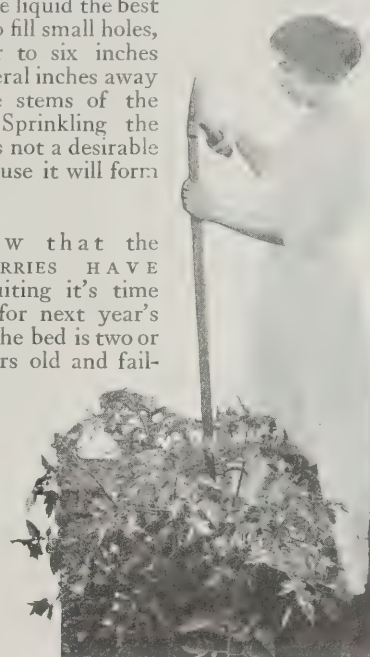
★ THERE'S no question about it! The WHEELHOES with their various attachments do reduce the amount of work necessary in the garden. With the wrench furnished with each machine a few minutes will suffice to make any adjustments necessary to change the style of work from raking the centres between rows to cutting on each side of a row which the machine is made to straddle. By using the machine each week the work is kept light and effective all season, or at least as long as any cultivation is necessary or desirable. The work thus accomplished will be greater in extent and superior in quality to that done by hand with ordinary garden rakes and hoes, necessary though these are.

★ LIQUID MANURE! Certainly it is good—provided it is properly made and applied. It is especially useful in growing all the leafy crops—lettuce, swiss chard, collards, cress, spinach, etc., in warm weather. One of the best ways to make it is to use a leaky barrel placed on a slightly tilted platform so the liquid that trickles through may flow into a tub or a big crock placed to catch it. The manure

placed in the barrel should be packed firmly around the sides, best left rather loose in the centre so the water may work down and out from centre to bottom and sides. Well rotted manure is better than fresh for this purpose. The first leachings are sure to be stronger than later ones, so may be diluted more or less. In applying the liquid the best plan is to fill small holes, say, four to six inches deep several inches away from the stems of the plants. Sprinkling the surface is not a desirable way because it will form a crust.

★ NOW that the STRAWBERRIES HAVE DONE fruiting it's time to plan for next year's crop. If the bed is two or more years old and fail-

Drive stakes for the tomatoes when the plants are two feet high, and begin pruning them



ing perhaps, better dig it up and plant celery, cabbage or some other late crop. If still in good condition mow off the tops, let dry a day or two, and then set fire to the mulch previously lifted and loosened. It is well to start at the windward side or corner so as to have the thing done quickly. The dreary look of the burnt bed will disappear in a week or two and beautiful, lush green leaves will push up. The advantages of this plan are to kill insects and diseases and to give the plants a fresh clean start. Of course, a cultivation and replacement of the old mulch with a new one are desirable.



The efficient utility garden may be just as attractive to the eye as is the flower border, and with a little forethought can be made a decorative feature

★ "BEWARE THE WORM." Unless spraying is done properly no one dare eat an apple in the dark. The worm that might thus furnish part of a meat diet is the larva of the CODLING MOTH whose first brood begins operations shortly after the blossoms fall. Toward mid-summer the full grown worms eat holes through the green apple and crawl to crevices in the bark and other hiding places where they pupate. While most of them wait until spring to appear, far too many emerge in a few days and lay eggs on the half grown fruit. These are the fellows to "beware." Of course, the most important work is to control the spring brood but in mid-July and early August the later ones may be destroyed by using arsenate of lead. Two pounds in 50 gallons of water (or about an ounce to two gallons). Always make the spray as misty and apply with as much force as the pump will permit.

★ THOSE enormous filmy webs inclosing whole branches of apple and some other trees in mid-summer are probably made by the FALL WEB WORM, the parent of which laid her eggs on the leaves in June or early July. They are not caused by a second brood of the apple tree tent caterpillar which perhaps stripped the trees bare in May. As soon as the larvae are seen spray with arsenate of lead (one ounce to two gallons of water) especially on the foliage around the outsides of the nests. Unlike the tent caterpillar the web worm larvae feed inside their nests. The former uses its tent as a sort of den or retreat from which paths of silk are laid to the feeding areas outside.

★ THERE'S no need to fear those yellow necked CATERpillars on the APPLE TREES in July. To be sure when a drove of a dozen or more feed like a flock of sheep side by side a leaf doesn't last long. Often a single twig may be populated by a hundred or more. A lighted rag torch soaked in kerosene will burn them off or they may be destroyed by spraying with arsenate of lead, an ounce to two gallons of water.

★ It's too late now to prevent damage to the plums, cherries, apricots and peaches from CURCULIO, that little worm that makes the fruit ripen and fall prematurely. The preventive spraying should have been done in spring while the fruits were still small. Much may be done, however, to reduce attacks for next year. One of the best means is to keep poultry confined around the trees until after the fruiting season has passed. Chickens are very partial to an insect diet.

★ LITTLE PIN HOLES in the peach tree trunks and branches, eh? They are made by tiny beetles, borers, of two principal kinds that attack also cherry, plum, and apple trees. If you had noticed earlier, when the trees were first attacked, there were little masses of gum on the stone-fruit trees where the borers were working. While healthy trees well cared for may be attacked, this is not common except where the beetles are very abundant. The trees that usually fall victims are the neglected and ailing ones. They are a menace to the other trees so the sooner they are cut out and burned the better. It is important to burn the trees as soon as cut even using dry fuel or brush to make them burn; for the insects will crawl out if the trees are left whether cut or not. Good cultivation and fertilization of the trees are the best three preventives of this kind of damage because they tend to keep the trees in

Skirmishing Orders of the Month

good health. As a further preventive a coat of thick whitewash applied in early July, October and late March is fairly effective.

★ BROWN ROT of peach, cherry, apricot and plum is rapidly spread by curculios which gnaw holes in the fruit and leave spores of the disease. To control both the disease and the spreader of it, a spray of self-boiled lime-sulphur wash and arsenate of lead (an ounce to two gallons of the wash) is effective since the wash destroys the disease and the poison settles the bugs. While the first application should be given as soon as the "shucks" or calyxes fall off the newly formed fruit, yet a thorough spraying in early July will be helpful.

★ SLUGS on the quince leaves! Probably the same as on pears. Fight them with poison or dust the same as on pears.

★ CHERRIES ARE MADE "MAGGOTY" by the larvae of fruit flies which lay their eggs beneath the skin just when the fruit is beginning to color. The infested fruits show sunken decayed spots above the yellowish white grubs. These maggots crawl out of the fruit and burrow in the ground to pupate until the following spring. An effective spray if applied before the eggs are laid is made of five pounds arsenate of lead, three gallons of molasses and one hundred gallons of water—or similar proportion. A quart or two of the concoction is enough for a tree. Arsenate of lead alone in water is not effective enough.

★ THOSE little STEELY-BLUE BEETLES that hopped off the opening grape buds in May were perhaps more active than you then thought. They were laying eggs all through that month and now (July 1st) their numerous progeny are feeding on the foliage. In about three weeks they'll be full grown and will drop to the ground to pupate for ten days or so before emerging to feed as adults on the foliage. In this last form and during late summer they do little damage; but in spring and in July they are often perfect pests, the early bugs destroying the buds, the larvae gobbling up the leaves. Gathering the adults in shallow pans of kerosene is as cheap as spraying. The larvae are easily destroyed by arsenate of lead (an ounce to the gallon) in bordeaux mixture. This latter material will hold various grape diseases in check.

★ AS SOON as the last RASPBERRIES AND DEWBERRIES have been gathered is the time to cut out the stems that have borne fruit. They are useless because they will die next winter. The sooner they are removed the better. It is best to make several cuts of canes that can't be removed without danger of breaking the young stems. As there are often insects and diseases in or on the old stems, burning should be done without delay.

★ NOW is the time to PREVENT SPRAWLING RASPBERRY and blackberry vines for next summer. No, not by staking, but by pinching. As soon as a young stem has grown to the desired height, say 24 to 36 inches, use the finger or thumb nail to nip out the terminal bud. To do this properly will require a visit at least once a week from now until early fall; but it will pay because the canes so pinched will become

sturdy and so stiff that no wind will blow them over. They will not need to be staked.

★ NOW that the LATE CABBAGE, CAULIFLOWER, and brussels sprouts have been set out is the time to feed the plants. The ground is drier than in spring so there is less available plant food. Hence the necessity of supplying more so that when a shower comes the plants may have plenty to draw upon as long as the water lasts. While the plants are small, a teaspoonful each of nitrate of soda and acid phosphate to each will be sufficient. As they grow, a second dressing double the size may be given without damage. Always be careful to avoid getting any of these fertilizers on the foliage because they burn. To prove this, put a little on a leaf and after a dewy night or two notice the effect. It is well to spread the fertilizer thinly in a circle several inches from the stem as a centre.

★ CURRANT WORMS did a good deal of damage this spring eh? Then be ready for the second brood due in early July, for it is likely to be bigger than the first! Spray the lower and interior part of the bushes (gooseberry and currant both) thoroughly as this is where the eggs are most frequently laid. Arsenate of lead an ounce to 50 gallons of water is the usual spring strength. Fresh white hellebore is safer after the fruit begins to ripen—an ounce in two quarts of water.

★ WILTED and DROOPING RASPBERRY AND BLACKBERRY shoots and tips of shoots turning bluish! Cane maggots. The adult flies laid their eggs in the tip leaves and the maggots burrowed down the pith of the stems several inches and then girdled them just beneath the bark. Hence the wilting. Unless stopped it will continue to tunnel downward till it reaches the ground surface where it will pupate early in July if not already in late June. Here it will remain in pupation till next spring. Cut drooping canes several inches below the lowest wilted leaf. If solid the insect is in the cut part; if hollow make another cut several inches lower. Burn all cuttings.

★ THERE'S no need to be afraid of *Lepidota decemlineata*! When you find it on your POTATO VINES AND EGG PLANTS, just treat it to a spray containing an ounce of paris green to three gallons of water or an ounce of arsenate of zinc to two gallons. Better still, use bordeaux mixture instead of water so as to control disease as well as beetles. No, don't be afraid of potato bugs. They're easy!

★ THOSE little black beetles that hop merrily off the potato vines as you approach are FLEA-BEETLES. They are responsible for the holes in the leaves. Bordeaux mixture, while a fungicide is a satisfactory repellent because the beetles don't enjoy it very much. Arsenate of lead or paris green may be added as in spraying for potato beetles. The same spraying will then answer for both bugs.

★ ASPARAGUS STEMS BARE, are they? The larvae and adults of two species of beetles are probably to blame. If the bed is small confine a brood of little chicks in it and forget your troubles. In a larger bed whack the lower parts of the stems to jar off the larvae. This is best done when the ground is hottest and driest about midday while the sun is shining full; very few larvae will get back to the plants.

Spraying is also effective—arsenate of lead one ounce, soap two ounces, water two gallons.

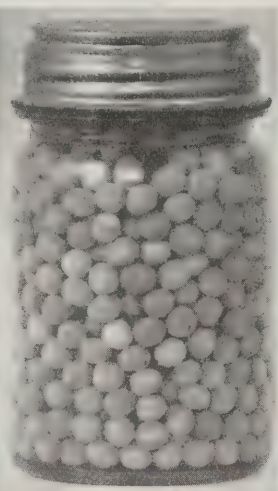
★ CAN'T understand why your SQUASH AND PUMPKIN VINES WILT here and there and rot or break off? The squash vine borer is the culprit. Split the stem and look for him—a borer about an inch long when full grown. As he is inside no spray can reach him. When his presence is suspected plunge a thin bladed pen-knife through the stem and make a slit parallel with the stem itself, then cover a foot or so of the stem with an inch of earth so it will take root at the joints above and below the

slit. Burn the vines as soon as the crop has been gathered.

★ POTTED STRAWBERRY plants are easy to get and handy to have. They're better than runner plants for summer setting. Plunge 2, 2½ or 3 inch flower pots rim deep in the soil where a runner plant is trying to take root. Fill with soil and place a small clod or a pebble upon the runner stem to prevent its being moved by the wind. In two or three weeks, or when the pot has become filled with roots the plants may be removed to and planted in a new bed. Plants so treated will give a good crop of berries the following spring

whereas runner plants set in the spring will not. The plan is therefore a time saver. Being simple any one can use it.

★ TO PROLONG THE CURRANT SEASON, cover some of the bushes with burlap or muslin early in July or before the fruit becomes ripe. The material should be brought down and tied at the base of the bushes so as not to be whipped off by a wind. By this kind of thing, currant varieties that would normally be ripe in mid-July will last in good condition until mid-August. Later varieties may be made to keep until September.



Mobilizing Crops for Winter

EFFIE M. ROBINSON Graduate Teacher, National Training School of Cookery, London

WHY, HOW AND WHAT TO CAN

WE HAVE a vegetable garden this year after all! We were "plumb" discouraged last year, as, after having planted, watered and tended the crops for many weeks and everything was flourishing, vacation time arrived and the house was shut up. This happened just as the beans and peas were beginning to yield. When we came back two weeks later, there was a luxuriant growth of weeds, quite choking out over-ripe vegetables. And then the mosquitoes! So I suggested that what we grew was not worth all the trouble and that this year we would devote ourselves to flowers and a nice little lawn. But "circumstances alter cases" and this year, after all, we are filling every possible space with food plants of all kinds; we actually have tomatoes among the Tulips and cabbages with the Canterbury Bells. Why not? Everything is green and pretty to look at and really, to twist a well-known sentence: "Now is the time for every good woman to come to the aid of her country."

The men are seeing to it that every possible use shall be made of the land; but, while the summer crops are plentiful and comparatively cheap we must prepare for winter supplies, when, according to the economists, there will be a shortage of everything. So I say, grow anything you can, and then can it. Very often there are "left overs" of fruit or vegetable after the day's meal—well, can them. *Don't throw away anything.* A pretty good plan to follow is to deliberately cook too much for one meal and can the remains. By doing this every

few days by the end of the summer you will have collected a fine number and variety of jars of fruits and vegetables that should help a great deal toward carrying you through the next winter at a cost of very little time or trouble to yourself and it also enables you to spread the money cost over many weeks instead of crowding it all into a few. The motto: "waste not, want not" had better be put up in everybody's kitchen as a reminder.

When I send in my weekly order to the grocer I always add an order for a five pound bag of sugar. This is not used for the ordinary daily cookery but put aside separately to be used for canning only, as at the time when all the fruits seem to ripen together and I simply have to do a lot of canning or preserving I have a whole lot of sugar already and more money to spend on fruits, etc.

RULES FOR CANNING

Canning is either a perfectly easy routine job or a terrific undertaking, according to the way you approach it. Simple canning of fruits can be done without sugar, but you must have it for jellies and jams. In all canning, by whatever method, a few general rules carefully observed, will pretty well assure success.

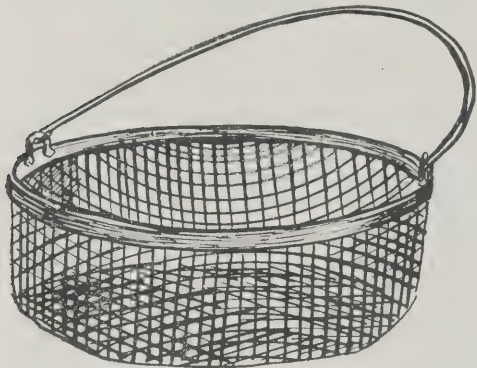
- (1). Absolute cleanliness in everything.
 - (2). Perfectly sound and fresh goods.
 - (3). Complete sterilization.
 - (4). Complete exclusion of air when sealing.
- For home canning glass jars are the best.

They are economical as they can be used over and over again. Use any shape or size you may happen to have, but if buying new ones, get either quart or pint wide-mouthed ones with glass top and fastened with a clamp. Whatever jars are used must have rubber rings, good springy new ones, as old and hard rubber which has "perished," as it is called, allows the air to seep through and so spoil the contents. After emptying a jar, wash it, and keep it in a handy place with fresh rubbers also handy; then when you are about to can anything all that is necessary is to put the jars on the fire in a pan of tepid water and when the water bubbles boil the jars fifteen minutes, then let them stay in the water kept hot till you are ready to use them. Boil the glass tops, also. When ready for work, lift out a jar, do not dry it, set it in a shallow pan of boiling water and fill with the boiling food, at once place the top and rubber ring in position and put into the bath. The rubber rings must be scalded—have a small pan with a quart of boiling water with one teaspoonful of bicarbonate of soda dissolved in it. When you are ready for the rubber rings, drop them into the solution for half a minute. Do not seal the jars tightly till the food has been boiled for fifteen minutes, for otherwise when the water starts to boil and the heat runs up, the jars, expanding, will burst.

If you are so successful that your canning business grows beyond your home needs, and you start out to market your products, as is quite possible if you once take to canning, the enamelled tin cans are good to use instead of

jars as they will not break in transit and they are cheaper. Of course, you will have to learn to cap and tip properly with the outfit that you can purchase. To do it properly and solder smoothly requires a little practise; and of course tin cans cannot be used over and over again.

Acid fruits and vegetables are affected by tin, so rhubarb or other extremely acid fruits must be put in glass jars anyway to be on the safe side.



Wire basket useful in handling fruit for scalding

YOUR CANNING OUTFIT

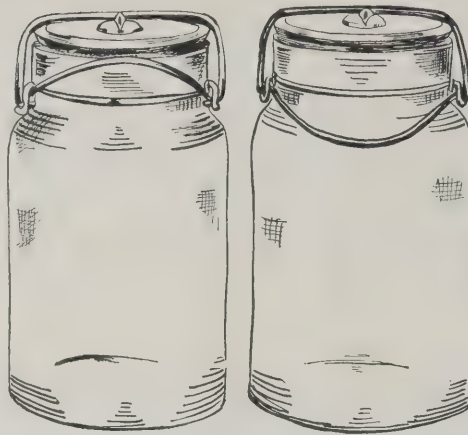
There are several processes of sterilizing, by hot water bath, steam water canner or steam pressure canner, also by the oven method. I use the hot water bath which is efficient and easy to manage. If you intend to do much canning it would pay you to buy the little outfit. The whole thing costs only about \$10.00 and really is a good investment, as well as being a convenience in having the correct and complete outfit always ready for use, and available at any time without using the utensils needed in your ordinary kitchen work. The washboiler makes a good canner, but it is not always convenient to get your canning and your washing days to separate themselves. You can also take the bought canner out-of-doors as the heating apparatus is with it, all under one and it would be nice to work out-doors on hot summer days instead of in the warm kitchen if you are not afraid of mosquitoes. I use my nice cool cellar which is screened.

A HOME-MADE CANNER

Do not give up in despair because you can't afford a real canner. The washboiler or even a large garbage can are good as they have flat bottoms and straight sides with close fitting lids. You must get the handy man or boy of the house to make you a rack of flat pieces of wood nailed crosswise to stand the jars on so that they will not break. The washboiler will hold about ten or a dozen jars and the garbage can five or six.

OTHER UTENSILS DESIRABLE

All utensils used ought to be either earthen-ware or porcelain or enamelled ware or some metal that will not discolor your fruits or other foods and whose action will



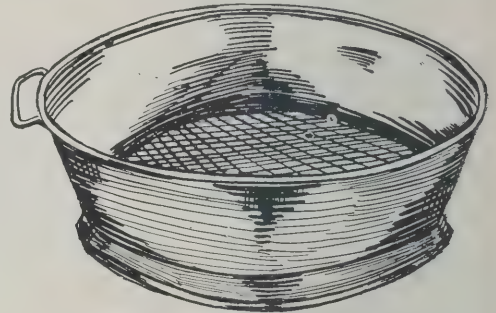
Left, position of spring during sterilization; right, spring tightened after sterilization is done

not injure them. A colander, a basket for dipping the things in water, saucepans, spoons, paring knives of silver if possible, and all other articles needed should be sterilized before being used. All your ordinary kitchen pots and pans can be used if you wish in-

stead of getting new, only provide yourself with plenty of clean cloths.

KILL THE BACTERIA

The great thing in canning is to kill bacteria as it is the cause of fermentation and spoiling. Bacteria or germs are all about us, in the very air we breathe, in the water we drink and the food we eat. It used to be thought necessary in order to kill these germs to use what was called the intermittent process, that is, boil up the things three separate times—once to kill the germs, then to kill the spores or seeds



Wire sieve, a handy utensil in gathering fruit, etc., in preparation for canning

which were left and had become germs in their turn in twenty-four hours, and then again for luck or safety. This made a long and tedious business of canning.

THE COLD-PACK METHOD

Now there is a new method of preparing the food before it is sterilized that acts on the bacteria and makes three-times cooking unnecessary and even undesirable. Once is enough. This method which is called the cold pack method in technical terms is the one chosen from all others by canning clubs and housekeepers as the best, as practically every kind of fruit and vegetable can be preserved by it, allowing, of course, certain variations in the time required for the different processes. This being such a satisfactory method is the one I use myself and have found entirely successful and will describe the process with assurances that success will follow. The cold pack method does not mean that the foods are not cooked but simply that they are packed cold into the jars and then cooked.

Having selected your fruit or vegetable, prepare it and then blanch it. Blanching and scalding are two distinct processes in canning and must not be confused.

Scalding means to dip the article in boiling water for one minute and then into cold when skins of hard fruits or vegetables, etc., can be easily peeled off. Blanching means to plunge the article, whether fruit or vegetable into boiling water, boil fast for from one minute to fifteen or even twenty minutes, according to the texture and composition of the article, then immediately plunge it into cold water to harden the surface again which is called cold-dipping it. This method has been found to kill bacteria effectively,

TIME TABLE

For Scalding, Blanching, and Sterilizing of Fruits and Vegetables by one-period cold-pack method

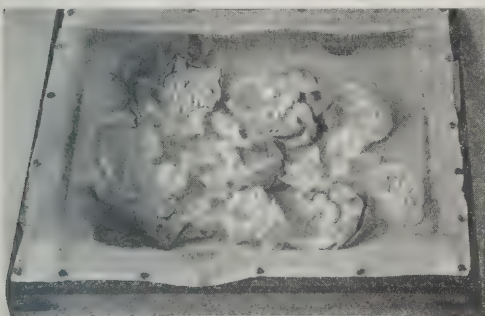
Time schedule given is based upon the one quart pack and upon fresh picked products

PRODUCTS	SCALD OR BLANCH	HOT WATER BATH OUTFITS AT 212°	WATER SEAL OUTFITS 214°	STEAM PRESSURE 5 to 10 LBS.	PRESSURE COOKER 10 to 15 LBS.
Fruits of all kinds	Minutes	Minutes	Minutes	Minutes	Minutes
Apricots.....	1 to 2	16	12	10	5
Blackberries.....	no	16	12	10	5
Blueberries.....	no	16	12	10	5
Cherries (sweet).....	no	16	12	10	5
Dewberries.....	no	16	12	10	5
Grapes.....	no	16	12	10	5
Peaches.....	1 to 2	16	12	10	5
Plums.....	no	16	12	10	5
Raspberries.....	no	16	12	10	5
Strawberries.....	no	16	12	10	5
Citrus fruits.....	1½	12	8	6	4
Cherries (sour).....	no	16	12	10	5
Cranberries.....	no	16	12	10	5
Currants.....	no	16	12	10	5
Gooseberries.....	no	16	12	10	5
Rhubarb (blanch before paring).....	1 to 2	16	12	10	5
Apples.....	1½	20	12	8	6
Pears.....	1½	20	12	8	6
Figs.....	15	40	30	25	20
Pineapple.....	10	30	25	25	18
Quince.....	6	40	30	25	20
Special Vegetables and Combinations					
Tomatoes.....	1 to 3	22	18	15	10
Tomatoes and corn.....	T. 2, C. 10	90	75	60	45
Eggplant.....	3	60	45	45	30
Corn on cob or cut off.....	5	180	90	60	45
Pumpkin.....	5	90	50	40	35
Squash.....	5	90	50	40	35
Hominy.....	5	120	90	60	40
Cabbage or Sauerkraut.....	5	90	75	60	35
Greens or Pot Herbs					
Asparagus.....	5	120	90	50	35
Brussels sprouts.....	5	120	90	50	35
Cauliflower.....	5	120	90	50	35
Pepper cress.....	15	120	90	50	35
Lamb's-quarters.....	15	120	90	50	35
Sour dock.....	15	120	90	50	35
Smartweed sprouts.....	15	120	90	50	35
Purslane or "pusley".....	15	120	90	50	35
Pokeweed.....	15	120	90	50	35
Dandelion.....	15	120	90	50	35
Marsh marigold.....	15	120	90	50	35
Wild mustard.....	15	120	90	50	35
Milkweed (tender sprouts and young leaves).....	15	120	90	50	35
Pod vegetables					
Beans (lima or string).....	5	120	90	60	40
Okra.....	5	120	90	60	40
Peas.....	5	120	90	60	40
Roots and tubers					
Beets.....	6	90	75	60	35
Carrots.....	6	90	75	60	35
Sweet potatoes.....	6	90	75	60	35
Other roots and tubers (as parsnips or turnips).....	6	90	75	60	35

making the intermittent process unnecessary. It also draws the acid or acrid flavor from vegetables, and it helps to retain the full flavor of the article to be canned by sealing up the juices.

The food after blanching and cold dipping is packed into your already sterilized jars. Fill the jars quite full, then fill up with some liquid. For vegetables use water with a teaspoonful of salt for each quart jar. For fruits use syrup either thick or thin as you wish, fill to overflowing, put on the glass tops and the rubbers, and fasten loosely, put into your canner and boil for fifteen minutes after the water begins to bubble, then take out the jars (use a wire lifter for the purpose), tighten the caps or press down the springs, return to the canner and after the water begins to bubble again, boil long enough to cook the food.

The time for cooking food varies tremendously. Corn and peas require four hours. Greens, beets, lima and string beans, sauerkraut, etc., require about an hour and a half.



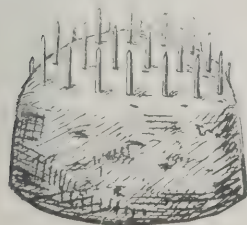
Home made screen tray for drying produce in an oven or in open air

Give okra, succotash, pumpkin, squashes, quinces and such like an hour, and soft fruits such as apples, strawberries, rhubarb and huckleberries only half an hour. By a little practise and knowing how long things take to cook for the table you will soon learn the exact time.

THE OPEN KETTLE METHOD

For leftovers which I told you I always can and which of course are already cooked, the open kettle method is good. Boil the food up again, have the jars boiling hot, and the rubbers scalded. Have a shallow pan with about two inches of boiling water in it. Stand the hot, wet jars in that, fill to overflowing with the boiling fruit with its juice, or vegetable, strained and boiling water added, run a skewer round inside the jar to break any air bubbles. Then put your tops and fresh rubbers on and seal at once. Turn the jars upside down to cool. Next morning you can see if there is any leak. If so, find out the cause—cracked jar, ill fitting top or another rubber needed, then the whole process must be gone through again.

If using the open kettle method the jars must be kept under water till ready to use and the work must be done very quickly while the food is boiling hot.



Fruit pricker, made with wire on a cork base, useful in canning tough skinned goods

HINTS ON PREPARATION

The fresher the food the better the canned article will be. If you are one of those lucky people that can hang your basket on your arm and go out and pluck whatever you want you are the one



Complete canning outfits with self contained heat for outdoor use in the orchard, etc.

who ought to have the best canned goods. The commercial canners put up their factories just where their foods grow and they are gathered, graded, prepared and canned all in the same day. Beans, peas and asparagus particularly sometimes have a flat, sour smell,

Canning for Victory

"Our reports show the widest and most intelligent interest in canning and drying foods for winter use. Exactly what effect this will have on the nation's food supply is hard to say, but it is going to help, and may be enough to turn the tide to victory sooner than we expected or hoped."

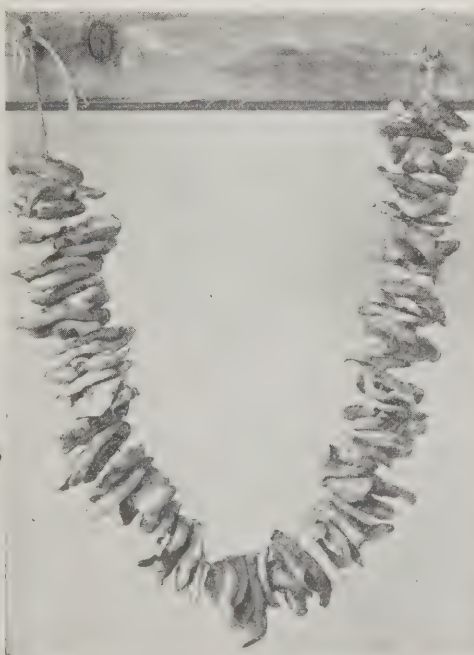
CARL VROOMAN

Assistant Secretary of Agriculture

very unpleasant that is simply due to stale vegetables having been used.

After picking your fruit, etc., look it over carefully, throwing out all bruised or over-ripe or any way unsound pieces, wash carefully, looking for insects. Apples and articles that discolor quickly after peeling should be dropped into cold water with a little salt dissolved in it to keep the color.

All fruits and vegetables must be blanched



Mushrooms and other articles, such as peppers may be strung up and sun dried before storing away in bags

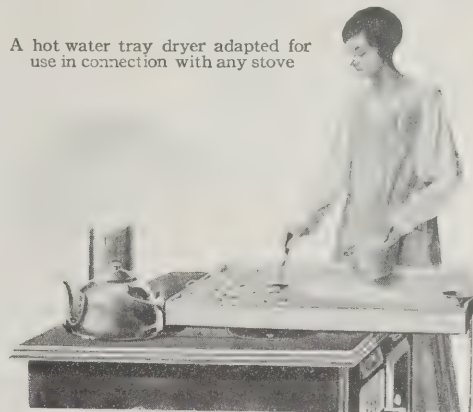
and cold dipped, as described above. Do not leave them around after cold dipping.

Preservation by Drying

THE advantage of drying over canning is that there is not so much apparatus needed, not so many utensils, the flavor of the food is perfectly retained if the work is done properly and much less time is taken in preparation.

To dry is simply to extract all the moisture from the article leaving it all shrivelled and dry. By just soaking it in water when needed for use it regains its natural size, and color and flavor to a great extent. Foods prepared this way can be packed tightly in boxes and travel and keep well. For large quantities you can get a regular evaporator which costs \$6.00 and which does the work perfectly or you can dry in a cool oven or outdoors by the heat of the sun. Drying can be resorted to if you have too little to can or do not wish to go to the exertion of it as sometimes will happen. Only remember all the moisture must be extracted or the

A hot water tray dryer adapted for use in connection with any stove

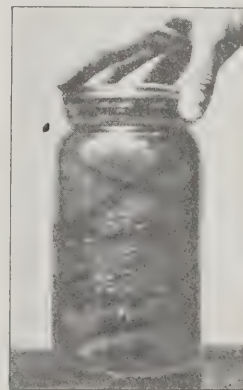


things will become mouldy. Clean and prepare and wash the foods the same way as if you were going to can them. Cut apples, pears, peaches or any like fruit in slices, open plums but don't stone them, lay flat on thin clean boards and dry in the sun, in a cool oven or spread on your evaporator.

If drying food out-of-doors, look out for rain. Cover with mosquito netting to keep out flies or other insects, and it is well to heat them over steam before putting away to destroy any insect eggs that may have gotten there.

All small fruits can be dried whole the same way. Cherries can be pitted or not as you please, and if sugar is sprinkled on the layers they will be nicer. I always buy mushrooms when they are at their cheapest. Peel and stalk them and put them in a paper bag with top tied tightly with string. I leave a loop to hang the bag by and suspend it near the ceiling, which is always the warmest part of a room.

Celery leaves, parsley, mint or other herbs can be kept perfectly that way. Wash and scald them (as previously told), then dry; and when dry keep in bags. Tie the bags up tightly to prevent dust getting in, and all through the winter you need never be without your "pot-herbs."



When using this type of jar make certain that it is actually sealed

Garden Furn

ILLUSTRATIVE PHOTOGRAPHS

RUTH

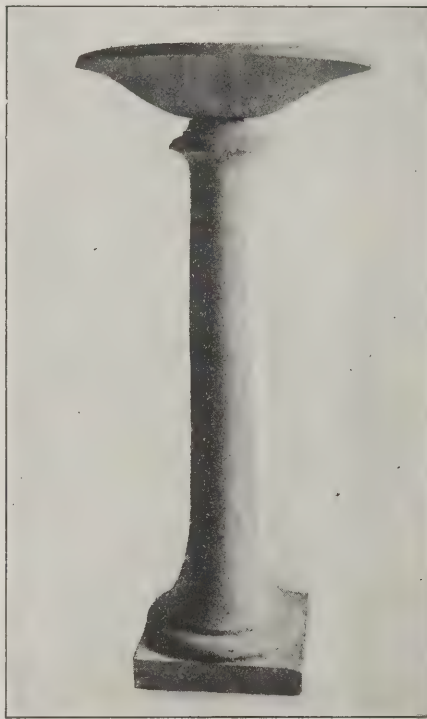
"The main idea to be kept in mind in any garden furniture, is to follow the architectural scheme which suits the garden." (See page 10)



A brick wall with a good trellis and seat treatment. Garden of St. Martins, Penna.



An arbor and seat which have the simplicity of the country carpenter's work, and the good lines of an experienced designer. In the garden of Mr. G. C. Eastman



Example of Sharonware bird bath which fits well into garden decorative schemes



Lead figure personifying Summer. The good qualities of lead have made it popular in England for centuries, and are only beginning to be appreciated in America



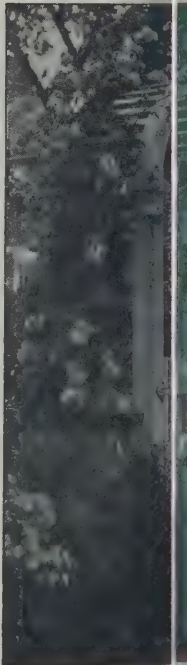
A classic sundial of iron. Garden of Mr. S. T. 1900



A trellis-arch whose design could not be improved upon. Manufactured by the Mathews Mfg. Company



A pleasing seat treatment with horizontal lines emphasized. Stone benches of classic design such as this are more available than good wood benches, but they are often used unsuitably near a wood trellis or arbor, where no masonry construction makes the stone appropriate. Garden of Dr. Woodward



This arbor has a good lines and not a tail. Combined with a fusion of phlox and hol

re That Fits

PHS SELECTED BY

J, Landscape
Architect

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embrace house and garden"

(age)



beauty, well placed.
ewburyport, Mass.



ess charm born of
et architectural de-
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is delightfu'



Lead figure personifying Spring.
Lead is an agreeable material for garden
figures, weathering in time to a soft
gray



These angle seats emphasize the shape of the pool, and give one a choice of two directions in which to face. Garden of Dr. Woodward



The gazing globe in the garden is a source of interest on account of its reflections



The trellis and benches have been added to this old house, without disturbing its serenity, although not true to the period. Residence of Mr. R. A. Cram, architect, at Weyland, Mass.



Terracotta tubs filled with topiary work used to mark the piers along a wall. A more ornate jar or urn could not have been used successfully in such numbers. There is enough uniformity to make the variety in boxwood forms a pleasing change. "Garden of Weld" estate of Larz Anderson



A simple arch of good proportions with a gate which owes much of its interest to the hinges and latch

Selecting Garden Furniture that Fits

RUTH DEAN
Landscape Architect

(See illustrations on the two preceding pages)

SPEAKING from an architectural standpoint, the kind of garden one builds should be influenced chiefly for the sort of house for which it is made, and, similarly, the type of furniture and accessories one puts into a garden should be carefully chosen to conform to the particular style of the garden they are to decorate. Sundials, benches, archways and gates are too apt to be unrelated objects, bought without any special reference to each other, and with very little thought as to whether they carry out the main idea of house and garden. The house is the starting point from which the architecture of the garden should take its keynote; and the furniture of the garden, in turn, should be in keeping with the style of both, in order to develop a pleasing whole.

The picture of the (No. 5) garden, shows just such a well knit house and garden; the white painted arbor, the rough stone wall, the hollyhocks and phlox, all bespeak the white clapboard house which shows through the branches of the big maple. The conventional stone bench in Dr. Woodward's garden, is well used in connection with the carefully finished masonry wall, and the white trellis and bench against the brick wall of the St. Martins garden, carry out the brick and white scheme of the house very pleasingly.

Incidentally the promiscuous use of white painted furniture is not to be recommended. Most of the stock furniture available, comes

in white or green, and the purchaser takes it "as is," without realizing that the manufacturer is able and willing to furnish it in any other color of paint or stain, or totally unpainted if desired. Green paint is apt to be out of harmony with Nature's greens, and white paint is as often staring and unrelated to the architecture of the garden. The natural wood finish of oak, allowed to take on the mellow, silvery tones of age, is probably the most widely adaptable finish, for it is native enough in appearance to be at home in any garden of not too formal a character.

One of the most important points for consideration in choosing wood garden furniture, is its enduring quality, a subject on which Mr. Herbert Mathews has very interesting things to say about cypress: "Weather resisting wood is the great essential in the manufacture of wooden garden furniture, and architectural wood working of all kinds for the garden. In England old ships are purchased and the wood utilized for outdoor architecture. We in this country are fortunate to have cypress which grows in swamps covered much of the time with water. It is customary to dig canals in which to tow the logs to the mills, or to construct railroads through the swamps, as the trees grow 75 to 140 feet in height and three to six feet in diameter. Few cypress trees are large enough for lumber at an age of less than two centuries, and many do not reach sufficient size until they are much older.

The wood is straight, easy to work, and very desirable in contact with the soil. What we are mostly interested in is the Bald Cypress (*Taxodium distichum*) which is generally termed in advertisements the "wood eternal."

The hues of naturally aged wood may be simulated by means of gray or gray-brown stain if one is impatient for effect, but the real texture is impossible to gain except by seasons of wind and rain and heat and cold.

Stone or cement is more formal in character than wood and introduces a somewhat more pretentious note into the garden. This fact should be considered in connection with the degree of formality of one's house and the corresponding effect desired in the garden.

The generally prevailing notion that figures of any sort mean an ambitious or pretentious treatment of the garden, is not necessarily true, for the effect is largely dependent upon the type of figure chosen. The two little lead figures illustrated, for instance, are delightfully informal in character and woodland in spirit, and would be at home in the least architectural of gardens. More classic figures such as busts of philosophers or sculptured Dianas recall the Italian style which is stiffer in character.

The main idea to be kept in mind in making a choice of any garden furniture, is the note it will contribute to an architectural scheme which should embrace house and garden and be fairly consistent throughout.

Transplanting Out of Season

C. L. MELLER
North Dakota

DON'T LET OVERCAUTION PREVENT YOUR MAKING NECESSARY IMPROVEMENTS—REALLY CAREFUL HANDLING THE SECRET OF SUCCESS AT ANY SEASON

WHAT to do when one does not know what to do" is an enigma without which a gardener's experience is lacking in completeness. The need, sometimes the desire, to transplant out of season sooner or later confronts every gardener and the answer is seldom to be found in one's trouser pockets no matter how deep one may thrust one's hands into them.

My advice is do it any way, ignoring the ordinary dread of transplanting out of season, for it is largely a matter of attitude. A friend writes me from Minnesota that he has transplanted Iris with very good success ten months in the year. He is an Iris enthusiast and your enthusiast is always rationally willing to take a chance. I have repeatedly transplanted Iris in bud and flower and though, as might be expected, the bloom was slightly impaired, the plants did not suffer.

The man who is ready to transplant Iris ten months in the year insists upon it that in our latitude shrubs should be planted only in spring. His insistence does not make it a fact, however, it merely shows his attitude in the matter. If he knew Lilacs as he knows Iris, he would know that a Lilac can be moved whenever and wherever an Iris can be transplanted. And the method is no more difficult, except that from the nature of the case there is a very much larger bulk to be handled. A giant could transplant a large Lilac bush as easily as an ordinary man can move an Iris. So imagine yourself a giant, take your time, be careful, and the trick is done!

Move as much soil as possible, with the



Showing the proportionate amount of soil to be taken with a shrub transplanted "out of season"

roots, but do not despair of success if a considerable quantity does shake loose. The

secret of success as far as I have been able to determine, seems to lie in having as many particles as possible clinging to the root-hairs and to get these into their new home undisturbed. It is a poor plan to puddle the roots and it is better to have the soil while transplanting a little too dry rather than too wet. Once in its new location, an abundance of water must be given to each plant. Root pruning is a great aid to success in transplanting out of season. Now all this is easily, almost subconsciously done in moving so small and compact a plant as an Iris though a much more difficult matter in moving so large a plant as a Lilac or other shrub.

Moving perennials out of season is much in the nature of repotting. In the greenhouse, the gardener does it all the time, but out-doors we are just a little unused to the situation. After re-potting, the gardener watches his plants carefully, giving them plenty of water and a little shade if need be. Now out-doors transplanting is really about the same in perennials where a good lump of soil can be lifted with the roots. That part of the work surely is no more difficult, though it differs a little in the very nature of the case for the water is not confined in a pot and evaporation is far greater. This necessitates greater watchfulness—nothing else. It is no trick to move perennials even in bud and flower.

First of all the new bed must be well prepared, with a deep friable soil free from lumps, then by carefully cutting around the roots with a sharp spade a lump of soil can be moved with the plant as to make it virtually

a re-potting process. A well scoured spade is quite a factor for the soil will cling to a rusty spade and thus be torn from the roots in drawing the tool out of the ground. Some perennials such as Bleeding-heart whose roots break apart easily must be handled with greater care than others such as Phlox, Iris, etc. My experience is that every perennial hardy in my locality can be successfully moved "out of season."

Some interesting facts developed in the course of this transplanting. Delphiniums moved in summer tend to bloom again in fall. Hemerocallis moved just before the flower buds come forth will have their bloom retarded all of two weeks. This, however, has proven true of all the perennials: that transplanting out of season has retarded their bloom more or less though it has seldom impaired it. For such late bloomers as Boltonias and New England Asters this would of course not become apparent inasmuch as these bloom up to frost anyway. [We read recently in an English paper a note on transplanting Peonies as the flowers fade. It was done with complete success. As a matter of fact almost any plant is in condition for moving just after flowering.—EDITOR.]

Root pruning a shrub several weeks before

transplanting is a great aid to success. This is done simply by thrusting a spade into the ground as deep as it will go all around the plant, marking off thus the bulk of soil that is to be moved with the roots. A tile spade is best because of its length. Also the spade should be held diagonally so that all the spade thrusts will tend to meet under the plant. Cutting back the top somewhat likewise helps. In this pruning, the gardener must seek to balance the top to the lessened root system. This will adapt the shrub to its new condition even before it is moved and will make the transplanting more in the nature of re-potting. Root pruning tends to develop small rootlets and root hairs, the very thing the shrub will need to establish itself in its new location. To make certain that enough soil be moved with the roots, a box can be built about the roots. The writer has found this last necessary only in transplanting Peonies and then circumstances required that the plant be kept out of the soil for several weeks.

The hardier the plant, the more readily it transplants out of season. Our native Gooseberry will transplant anytime and the work may even be done somewhat carelessly. So with the Rose that is actually hardy with

us, Gruss an Teplitz, it can be moved at any time though of course the transplanting should be done with care. I have succeeded in moving even Elms and Basswoods with their leaves more than two-thirds grown and attribute the success to ground preparation, root pruning and careful watering.

Transplanting out of season is not alone confined to the garden but many natives may be moved from the wild. The nature of the soil and the distance the plants often need to be hauled makes this kind of transplanting somewhat more difficult though it need not be the less successful on that account, provided of course that proportionate care is exercised. Wild flowers such as Blood-root, Violets, Jack-in-the-pulpit are not hard to move, even in bloom, while with shrubbery, the writer has found the Native Plum the only difficult subject. Wild Roses are always sure to grow. Choke-cherries will send forth a second crop of leaves if the first should wilt. Wild shrubbery needs to be cut back more severely than that in the garden. Crataegus and the wild Crabapple moved out of season may even seem to die, yet the following spring you will find most of them vigorously sending forth their buds.

Simplifying Garden Warfare

F. F. ROCKWELL
Pennsylvania

HOW TO GET DOWN TO THE LEAST COMMON DENOMINATORS IN THE CONTROL OF INSECTS AND DISEASES



The sturdy potato bug, type of the chewing insect that can be attacked by a stomach poison

THERE is no place for the pacifist in the war garden. The "conscientious objector" whatever moral ground he may take against war, in his own vegetable patch must shoot to kill or go hungry. No treating with the enemy is possible here; you must get him, and get him quick, or he will get you by the starvation process. It's a fight to the finish.

Hardly one garden in ten that left to itself comes through the average season without having one or more crops badly injured, if not practically destroyed, by some insect pest or disease—and never just the same lot of pests in two successive years.

WHY THE BUGS GET AWAY WITH IT

The fact that so little is usually done to prepare in advance for the impending battle with the bugs can not be put down wholly to mere indifference. Rather it is a general state of mental confusion as to just what can be done, to make ready for the attack. Every gardener knows that there are some dozens of bugs, worms, and fungi which may possibly wage war on his carefully nurtured plants before the season is over. He knows that they are of all kinds and descriptions with long scientific names that make them appear at first sight, proof against anything less than a gatling gun; and he does not feel that he can go to the trouble and expense of fortifying himself against the whole horde. So he decides to



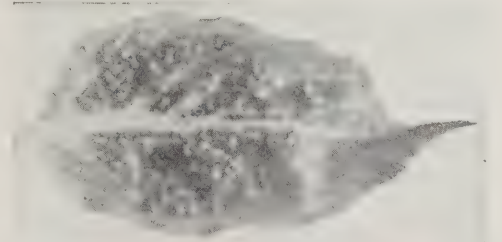
The boring or burrowing pest is more elusive. Prevention against attack is the better course

wait until some particular thing puts in an appearance, and then try against it whatever his most experienced garden friends may recommend.

What he does not know, in the majority of cases, is that this apparently very complex army of invasion can be treated as consisting of a very few groups or classes, the individual members of each of which can all be dealt with in much the same way.

This fact, once it is thoroughly grasped, simplifies the whole problem of garden warfare immensely. It means that the gardener has but five or six lines of attack to prepare himself against, instead of thirty or forty. Even the Latin names, so dear to the heart of the experiment station bulletinist, may be dispensed with in considering ways and means of arming for defense. Even the beginner, who has had a little practical experience, so that he can tell a potato bug from a cabbage maggot, and a melon louse from a cut-worm, will be able, if he goes at the problem in this way, to determine almost at once the nature of the particular thing he has to fight, and what to use against it.

The problem of "remedies" is almost as complicated and confused as that of enemies. Reliable manufacturers give a description of contents, and such goods are put up in a "ready-to-use" form which saves much labor in the garden. By all means use them. To get at the "patent insides," however, giving the chief or active ingredients instead of manufacturers' trade names, quickly reduces the problem of selection to its least common de-



All sucking pests (lice and scale) must be smothered by a contact spray of oily or tobacco preparations

nominators, just as grouping the many insects and diseases simplifies the problem of attack.

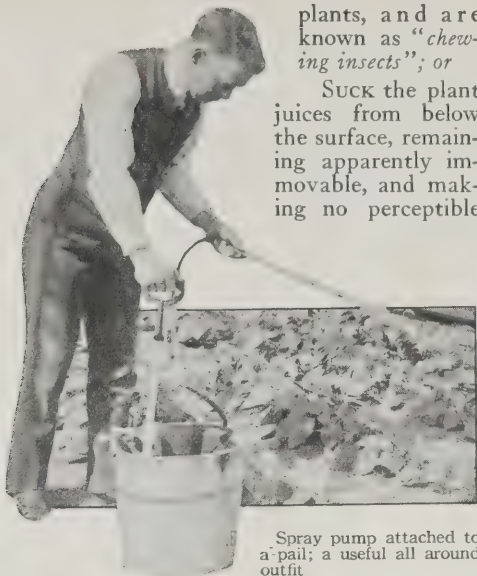
ONLY FOUR TYPES OF INSECT ENEMIES

Let us then begin at the beginning—even if it means repeating a few things you already know—and state the problem and the remedy, so far as one is available, in the simplest possible terms.

Insects, on the whole, can be controlled more successfully than fungus diseases. And yet in the home garden they are much more likely to cause damage. Diseases are more likely to prove serious where the same crop is grown over large areas than they are in the small garden. Insects, on the other hand, seem usually to be able to locate the single row of a certain crop in the home garden as quickly as they do the field of several acres, and do comparatively more damage there because the gardener is not prepared to fight them, and the grower is. How is the small gardener to prepare himself against their attacks?

First of all he must learn to distinguish between the various types of intruders—what their past, present, pluperfect or maiden latin names may be matter little. Here is what he can usually tell about them himself, with his own eyes, after a few minutes' observation or search. They either

EAT the foliage, or fruit, or stems of the



plants, and are known as "*chewing insects*"; or

Suck the plant juices from below the surface, remaining apparently immovable, and making no perceptible

Spray pump attached to a pail; a useful all around outfit

"holes," and are known as "*sucking insects*"; or

BURROW down below the surface, attacking the roots of the plant, and may be designated as "*root-workers*"; or

BORE into the inside of the stem or branches of the plant, and are termed "*borers*."

Therefore when you find trouble in your garden, and are satisfied that some insect is the cause, it is a comparatively simple thing to hunt around or watch long enough to satisfy yourself as to which of these four classes the intruders belongs.

The *chewing insects* are usually the first to be spotted, because the damage they do is at once apparent. They include such well known and unwelcome friends as the potato-bug, the

green cabbage worm, the asparagus beetle, the horned tomato worm, the rose bug, the aster beetle, and many others which actually consume portions of the foliage or flowers. The deadly "*cut-worm*" is also an "*eater*," but he is in a class by himself, as explained later.

The *sucking insects* have a tend-

ency to choose the undersides of leaves of tender growing tips and buds, and to start in crowded and out of the way places where they are not readily observed unless one is looking for them. One of the first indications of their presence is contorted or twisted leaves, on an otherwise healthy looking plant. If they are allowed to continue unmolested, even for a short time, however, the whole plant soon gets a drooping, dejected looking appearance, and loses its green color. In an incredibly short time it will be injured beyond saving. The "*aphids*" or plant-lice attacking peas, cabbage, melons and many other things, the various forms of "*scale*," and the "*nymphs*" or young of the small white fly and the odoriferous black flat "*squash bug*," all belong to the sucking class.

HOW TO LOCATE ROOT-WORKERS AND BORERS

The *root-workers* are even more difficult to spot. Usually it is necessary to take the plant up by the roots, quite carefully, to find them. But their presence may be suspected when here and there a plant along the row has a drooping or wilted appearance compared to its neighbors, and does not seem to be making satisfactory progress. It is likely to lose color, also. Frequently it is too late to save the first plants attacked before their presence is suspected at all. The onion and cabbage maggot; the large white grub of the June beetle, and the wire-worm, are the most common pests of this type.

The *borers* take more freely to fruits and ornamental shrubs and trees than to vegetables and flowers, nevertheless they are occasionally to be encountered among the latter. One fellow, sure to show up every year, is the "*squash-vine borer*." You can begin to suspect his presence when your biggest and best vine begins to show signs of wilting at the growing tip on a bright day.

FITTING THE PUNISHMENT TO THE CRIMINAL

Diagnosis is important; but of course that doesn't amount to much without a suitable prescription. Having learned how to "*place*" the various insect intruders in your garden, the next step is to know what to do in each case to stop them. They cannot invariably be stopped. But prompt action and the right kind of "*dope*" will usually hold them under control at least. The first part of the remedy—*prompt action*—is however just as important as the last; you should never forget that.

The *chewing insects* can, for the most part, be controlled by internal or stomach poisons. The most convenient and effective of these for general purposes is arsenate of lead. It may be applied in a wet spray, or dusted on dry. The main thing is to get it on before the bugs or worms have a chance to do much chewing, and cover all parts of the plant evenly. It is made by a number of reliable companies. It is also the chief ingredient of several "*patent*" or trade-name concoctions. Helebores is sometimes used instead of the lead on currants or cabbages that have begun to form, as it washes off with the first rain. Paris green is a similar poison, but arsenate of lead has largely supplanted it.

The *sucking insects* cannot be poisoned by any of the above materials, because there is no way of getting it on their food. So for them the so-called "*contact poisons*" are used. They are not really poisons in the sense that the above are, but are capable of causing death by direct contact, through asphyxiation or smothering. The most convenient and effective of these is nicotine extract. It comes

in several degrees of strength, some as high as forty per cent. nicotine. It also forms the basis of a number of trade-name compounds. A high per cent. of nicotine is desirable. It is used diluted with water; if by itself a little soap is added to make the spray stick and spread. It can easily be added to a wet arsenate of lead spray, both being applied at once; only the nicotine must hit the insects directly, while the lead remains on the foliage to be eaten later. Kerosene emulsion is used for the same purpose. A stock solution may be kept on hand, making it a convenient spray.

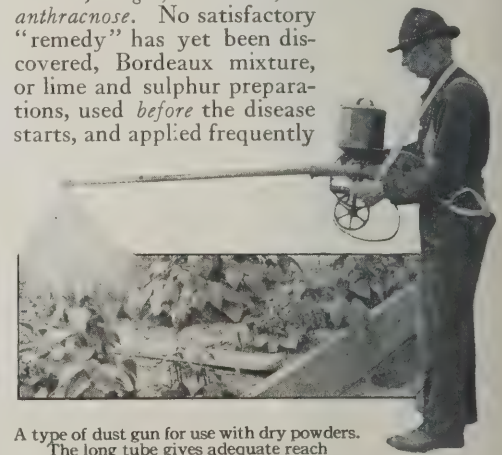
The *root-workers* and the *borers* are more difficult to get at. Lime, nicotine extract, and special preparations poured about the roots, first removing the top soil, are sometimes helpful, but by no means sure. Badly infested plants should be removed and burned. A top-dressing of nitrate of soda, with cultivation and slight hilling up, and irrigation if possible, to stimulate strong new growth should be given, as the attack is usually transient, and the plants may outgrow it if they are not destroyed. The squash vine borer may be taken out by slitting the stem lengthwise on one side; after which the wound and several joints beyond it should be covered with moist soil. Strawberries and other plants attacked by the large white, or June beetle grub may be taken up, the grub destroyed, and the plant trimmed back and reset.

FORESTALLING THE CUT WORM

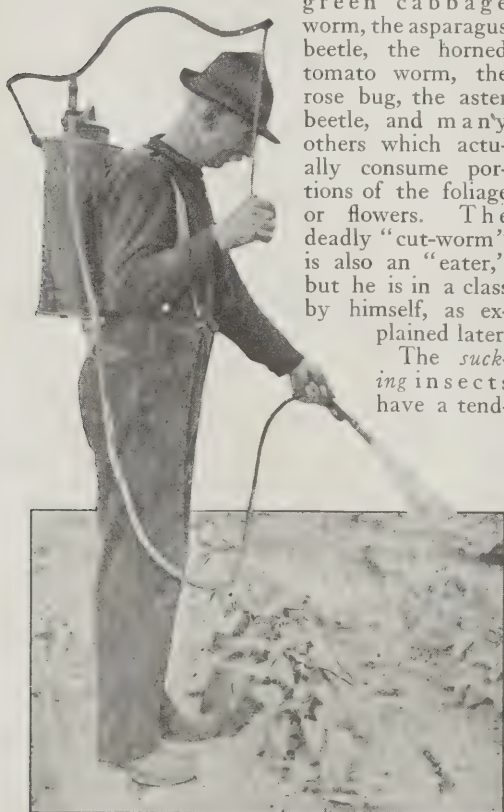
The cut-worm is a chewer, but not of the regular type. He eats through the stem of the plant, or a branch of it if the stem is too large, destroying the whole plant or branch for the few bites he gets out of it. So that, even if he could be got by poisoning the plants, he would have done his damage before succumbing. The cutworm is particularly harmful to newly transplanted plants, and to young seedlings. If you will dig carefully around a cut off plant early in the morning, the culprit can usually be unearthed. But the only way to head him off beforehand, is to trap him under small pieces of shingle or board over night, on newly prepared surfaces ready for planting, or to use a poisoned mash before as well as when planting. A combination of these methods will greatly reduce the damage they will do. The mash is made of one quart of wheat bran, a teaspoonful of white arsenate of Paris green, and a teaspoonful of molasses, mixed with enough water to make a moist mash, to be spread around toward night fall in small quantities.

THE BEST TO BE DONE WITH DISEASES

The various fungous diseases which attack some vegetables and flowers are known as *mildew*, *blight*, and *rust*, or *anthracnose*. No satisfactory "*remedy*" has yet been discovered, Bordeaux mixture, or lime and sulphur preparations, used before the disease starts, and applied frequently



A type of dust gun for use with dry powders. The long tube gives adequate reach



The "*knapsack*" sprayer is easily portable and can be carried to any part of the grounds. Has continuous pressure

enough to keep new growth covered, are helpful in *preventing and controlling* all of these things. Fortunately they can be used in connection with arsenate of lead, making a "combination" spray which, if used systematically on plants likely to be attacked, will ward off both injury by eating insects and by blight or rust. Spraying should be begun early in the plant's development, and repeated as often as required to keep up with the growth.

SIMPLE AND COMPLETE PROTECTION

For real garden protection—as a complete insurance against insect and disease injury as can be had—the following simple plan which is not expensive considering the protection afforded, is probably the best that can be followed.

On all plants *likely* to be attacked by either eating insects or disease, use a combination arsenate of lead and bordeaux preparations at intervals of ten to fifteen days, whether any trouble is in sight or not. This list would include: beans, cucumbers, melons, potatoes, squashes, and tomatoes. In addition to this, a forty per cent. nicotine extract should be kept on hand to add to this spray on the first sign of plant lice, or other *sucking* insects.

Or, if more convenient, the bordeaux-lead spray may be applied in powder form, with a dust gun; and the nicotine kept on hand for *instant* use when required, as at the first appearance of lice on peas, melons, or cabbage.

These precautions, with a good sprayer or dust gun, kept in perfect condition, and cleaned and oiled like a repeating rifle, will enable the gardener to "do his bit" creditably in fighting the insect and disease enemies in his garden, which are, this year at least, enemies of his country.

Do Sprays Cause Any Injury?

BY ALDEN FEARING, MASS.

IN THE course of my^a experience as an amateur orchardist, I have run up against some perplexing questions regarding the spraying of apple trees. In seeking answers to these questions I consulted several fruit

growers of experience, several state experiment stations, and the U. S. Department of Agriculture. The resulting correspondence has proved of considerable value to me, and may perhaps be useful to somebody else. I shall have room to give only brief excerpts but the net result of these opinions is, I think, conclusive.

A timely question is as follows:

Does the use of bordeaux mixture as a fungicide, with or without lead arsenate, tend to russet the fruit?

This has bothered me a great deal, for I have had considerable trouble with the russetting of fruit, particularly Rhode Island Greenings and young trees just coming into bearing. To secure a combined insecticidal and fungicidal effect, I used a compound of bordeaux mixture and lead arsenate. The advice of other fruit growers led me to suspect the bordeaux as the cause of my trouble, and I sought expert advice.

In the first place, the manufacturer insisted that the bordeaux was not responsible. He said:

"I have seen fruit rusted just as badly where lime and sulphur have been used as where bordo-lead have been applied. I have also seen apples rusted where the trees have not been sprayed at all, which was due to the hot sun after a rainy spell. It is the climatic conditions with the insecticides that causes the trouble in almost every case."

Mr. H. L. Frost, who has conducted extensive experiments in his orchards at Littleton, Mass., writes:

"My experience, based on observations carried on for the last five years, has been that when we have an excessive amount of moisture during the early summer, rusting of the fruit invariably occurs on certain varieties of apples. This rusting is quite materially aggravated by spraying, both with bordeaux mixture and lime and sulphur, possibly to a slightly greater extent where bordeaux is used. During these five years there have been two years when the weather conditions were such that the rusting was very bad, especially 1916. In 1912 I found a large number of apples badly rusted which had never been sprayed. I also found the rusting much worse in the valleys than on the hilltops, which led me to believe that the presence of fog was materially affecting the condition of the fruit. If the spraying is done immediately after the dropping of the blossoms, I do not believe the fruit will be much affected; but if it is delayed, or if an application is made after the fruit is pretty well formed, I believe, when there is an excessive amount of moisture, the rusting will be increased. My conclusion is that this injury to the apple is caused primarily by climatic conditions, and is aggravated by spraying with any material, possibly a little worse by copper fungicides. I would recommend less spraying of certain varieties of apples with fungicides during an extremely wet season, especially the Baldwin."

From Mr. M. F. Barrus, of the U. S. Department of Agriculture:

"Bordeaux mixture has been held responsible for the condition known as russetting which sometimes occurs on apples, especially of the light-skinned varieties. It does not always occur when bordeaux is used, but it occurs so commonly that growers were not at all reluctant to give up bordeaux for the lime-sulphur solution, which does not seem to bring about so great an injury."

Prof. M. B. Waite of the same department writes at considerable length, saying that bordeaux may be safely used as a fungicide late in the season, but not in May and June.

"It has been abundantly demonstrated that bordeaux mixture, either with or without arsenate of lead, applied to the young fruit and tender foliage of the apple, causes russetting of the skin of the fruit and more or less copper poisoning, spotting, and reddening, and finally defoliation of the leaves. We have had so much trouble with this that we have finally abandoned bordeaux mixture entirely in our recommendations for the early treatment of the apple."

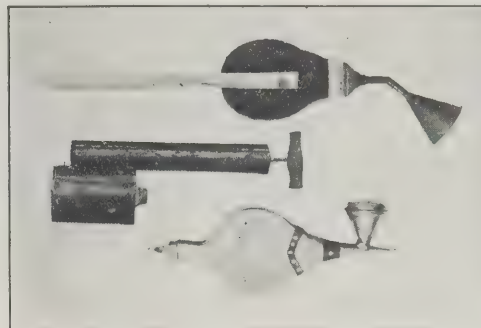
Mr. F. C. Stewart of the New York station writes:

"It is undoubtedly true that the russetting of apples is frequently caused by the use of bordeaux mixture as a spray, though weather conditions have much to do with it."

From Professor Sears, Amherst, Mass.:

"I think there is no question whatever that bordeaux mixture is likely to russet fruit. We have given it up as a summer spray on apples."

From E. H. Jenkins, director of the Connecticut station:



For dusting on sulphur, dry bordeaux, arsenates, etc., there are many bellows. Middle one used for liquids

"I am quite sure that bordeaux mixture, used with arsenate of lead or by itself, is likely to cause a russetting of the skin of the apple."

From Mr. Clinton, New York:

"We are now recommending the bordeaux mixture 4-4-50 only for the first spraying on the unfolding leaves before the blossoms open, in order to avoid rusting of the fruit which would occur with later sprayings."

For the later sprayings he recommends lime-sulphur and lead arsenate.

Mr. Gourley writes quite fully on this point, to the effect that he has seen the bordeaux burn fruit so badly that the crop would have been better off if not sprayed at all, though this is not always the case. He also testifies to the contributory effects of moisture, and adds,

"Varieties vary a great deal in their susceptibility to this injury. There is probably none that is worse than the Ben Davis. The Twenty Ounce, Greening, Baldwin, and many others are bad, while McIntosh, Rome Beauty, and some others are very often not affected."

He states that lime-sulphur has largely superseded bordeaux in New Hampshire.

Mr. Woods also testifies to the varying susceptibility of different varieties, stating that on the Ben Davis bordeaux and lead arsenate have invariably produced russetting, leaf spotting, and partial defoliation.

This whole question is summed up most thoroughly in Bulletin No. 287 of the New York Agricultural Experiment Station at



For gardens of any size the portable barrel sprayer will be found serviceable as it holds a quantity of material



Here is a serviceable type of outfit—power pump with strong container and a length of hose to reach well up the trees

Geneva, on "Bordeaux Injury," by Prof. U. P. Hedrick. Unfortunately, though I have been able to secure a copy of this bulletin, I understand that it is out of print.

I remember that last year, when my russeting was very bad, we had a great deal of rain in the early summer. Rain, in fact, followed our spraying at the time of the falling of the blossoms. This may have had a good deal to do with it, but I am inclined to think that the best way is to omit the bordeaux mixture to be on the safe side.

In conclusion, I might add that one of the best monographs on the general subject of spraying is Farmers' Bulletin No. 492, on "The More Important Insect and Fungous Enemies of the Fruit and Foliage of the Apple," by A. L. Quaintance and W. M. Scott.

Routing Our Common Foes

LAWSON MELISH, OHIO

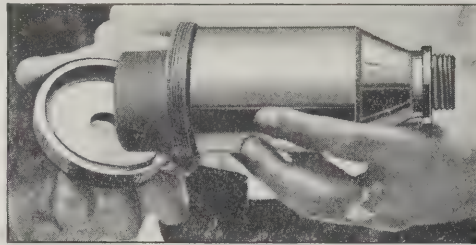
WHEN the garden neophyte investigates the many perils and enemies, which may attack her precious plants, she is apt to become a confirmed pessimist, and decide not to pit her feeble human efforts against such odds; but, luckily no one garden is visited by all the pests, and as I have experienced in my own garden if preventive measures are used, few gardeners will have serious trouble. There are certain pests that each one of us may naturally be expected to meet at some time in almost any garden; and it is of these that I speak.

For *San José scale*, which seems to have a penchant for fruit trees, and the old garden favorite *Fire Bush* (*Cydonia* or *Pyrus japonica*) as well as many other shrubs of allied family the preventive is to spray while the trees are dormant (January or February) with lime-sulphur solution in any of its forms. Directions for mixing will be found on the can. Be sure that every part of the tree is coated with the solution; for, as someone has said

"You may as well sit on the porch and rock, as to spray anything halfway."

Cutworms hide their fat gray bodies underground, where they are hard to find; and they have a most vicious habit of biting off the tops of young plants. Three recipes for their destruction are offered: A paste made of bran sugar and water and flavored with paris green lures them to their doom; as does freshly cut clover soaked in arsenate of lead. Either of these baits may be placed in small and tempting piles about the surface of the ground in the evening; or buried just underground, near plants the cutworms seem to have designs on. It is said too, by reliable authority, that if two or three holes are made with a sharp pointed stick, near the plants which are being attacked, these stupid worms will fall in and as they are not able to get out, they may then with ease be dug out and destroyed.

The *aphis*, (green, black, red, or other color fly), may be held in check, and destroyed, by frequent and thorough spraying with any of the proprietary nicotine solutions or oily emulsions which are offered by the seedsmen. Spraying should be done before the leaves of the plant curl, and care should be taken that the solution reaches the under as well as the upper surface of the leaves. Note: The little red *ladybug* is the natural enemy of the *aphis*, and is to be encouraged in her good work.



For use with the regular hose—this holder into which cartridges are inserted is practical for small quantities

The wretched *black beetle* which mobilizes his columns just as the *Asters* promise their best, may (according to my experience) be sprayed to his Waterloo, with frequent and thorough applications of a weak solution of paris green.

Wire worms are the ugly little grubs, less



For field crops there are many types of sprayers on wheels embodying and bettering the idea shown here. Some are quite elaborate machines

than an inch long, which look like bits of rusty wire, and which do considerable damage to the roots of plants. They may be vanquished by using the same clover bait saturated with arsenate of lead, which was recommended for cutworms; or by digging tobacco dust into the ground around the attacked plants, which drives them elsewhere!

Hand picking is the most effective way of ridding one's place of the troublesome *bag-worm*, which hangs on trees and bushes its pendant cradle of larva, which later hatch into the destructive worms which feed on many kinds of trees, both evergreen and deciduous.

Spraying with *bordeaux mixture* is advised for the following troubles: Hollyhock plants affected with rust, or with the disfiguring red spot on the undersides of the leaves, should be sprayed in April and again in May, or if the rust is not discovered until it has gained

headway later in the season, all affected leaves should be removed and destroyed, and a thorough spraying given. Monkshood and Delphinium which have been subject to blackened leaves, may be given two successive sprayings early in the season with bordeaux. When Peonies blacken on the flower stems and buds, a spray of this same solution, with the addition of some of the dry bordeaux dug about the crown of the plant, should prove effective. I used to think that the ants which swarm over the Peony buds, were enemies, but I have found that they do no harm to either flower or plant, and they assemble only to drink the sticky liquid exuded by the flower bud as it unfolds.

Bordeaux is a thorough remedy for mildew on most plants if applied in early stages. Dusting powdered sulphur on the foliage and about the plants is another excellent medicine.

The fatal *Lily disease* may, in a measure, be checked, or prevented by shaking each bulb, before planting, in a bag with some powdered sulphur. If the bulbs are placed on their sides, on a bed made of a trowelful of sand, then covered with another trowelful of sand, before the earth is thrown into the hole, proper drainage will be insured so that the bulb may not be subject to the disastrous decay.

It would be pleasant not to have to play the loud pedal on all the ills and enemies of the *Rose*. Two remedies for *mildew*, bordeaux

and powdered sulphur, have been mentioned in connection with other plants. Rosarians say with emphasis that the foliage of *Roses* should not be sprinkled in the evening, as the moisture retained on the leaves over night tends to produce mildew. Early morning is the time advised for sprinkling. For *black leaf spot*—the cause of blackening and prematurely falling leaves—spray with bordeaux. For *aphis* spray with some nicotine solution, frequently and thoroughly. For the ugly *black beetle* which finds the heart of your choicest *Roses* its most delectable food,

hand picking in the early morning, into a pan of kerosene, is the surest method of destruction.

Of the *larger pests*, mice, moles and rabbits are perhaps the most disturbing. *Mice* may be discouraged from eating bulbs during the winter, by planting with the bulbs a generous quantity of moth balls. *Moles* are such soft, pretty-coated little things that I hate to wage war on them; but they do have an annoying way of working under your best bit of turf, or flower border, and, I must confess it, they do chew up bulbs. Traps may be bought, with directions for catching these little blind creatures, or, if you can catch one at work drive a sharp spade just behind his body and bring him to light for execution. But if he should escape the activities of your spade, let it be said to his credit that he loves a diet of grubs as well as bulbs, so you may, with a clear conscience let him go in peace.

FEED YOUR PLANTS and they'll feed you!

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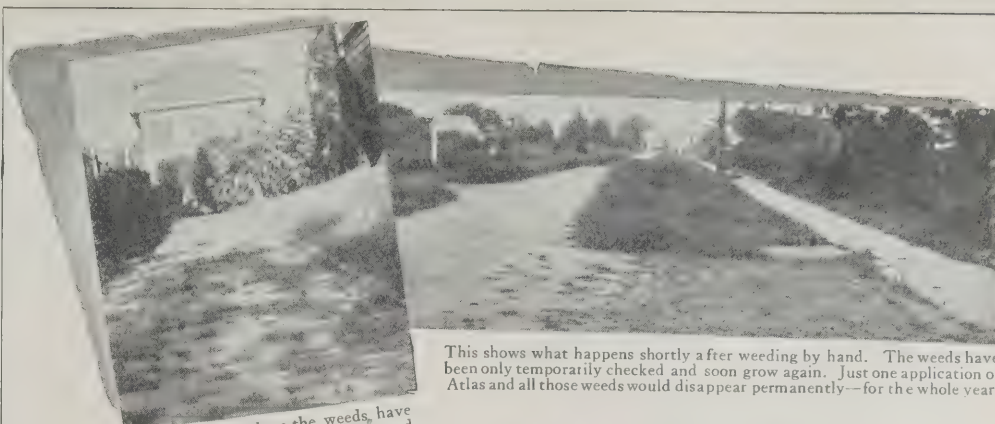
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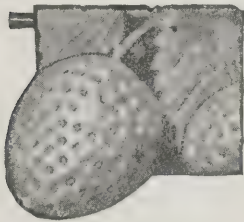
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4 ft. 1/2 inch diameter up	\$.60	\$1.25	\$2.00	\$4.00
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FOR THE SOUTH

Planting for winter store—Battling with insects—Keeping the garden fit.

PLANTING the crops is only one third of the work of the garden. Caring for them requires vigilance on the part of the gardener to conserve moisture by cultivation during the dry months, watering thoroughly when necessary and not spasmodically and insufficiently, guarding against diseases and insects by spraying.

Spray with bordeaux every two weeks for potato, tomato, and melon blight. Put in the bordeaux 2 lbs. of powdered or 4 lbs. of paste arsenate of lead to 50 gallons of bordeaux. This destroys the beetles and worms and borers that attack the vegetables. Begin when the plants appear above ground, so as to destroy the larvae and offset any disease.

Slug shot is a good insecticide for vegetables if dusted on in the early morning when the dew is on the plant, to make it stick. Use bordeaux on beans and celery plants for rust and for rot on grapes up to the middle of July.

Investigate currant and gooseberry bushes for worms and dust with hellebore. Spraying on roses should continue until the middle of September. Lasher's formula eradicates the beetles. The formula is

100 gallons of water
15 lbs. fish oil soap
1 pt. crude carbolic acid

It is best to spray when the leaf bud is just coming out, to kill the larvae. This is also good for insects on fruit trees.

Mildew on Roses, Phlox, etc., can be prevented by sprinkling with flowers of sulphur in the early morning and early in the season on those plants that are subject to this blight. Clean culture is a safeguard against disease and insect pests; therefore, destroy all weeds which breed insects and employ constant nourishment in the way of liquid manure. If plants are nourished and watered they are less liable to disease.

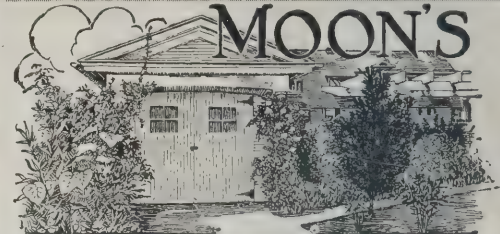
Corn smut and worms can be eradicated by a dust spray at silking time into the tip of the ear of 30 per cent. flowers of sulphur and 20 per cent. arsenate of lead.

Examine the base of peach and plum trees for borers. Their presence is indicated by the exudation of gum. Follow this down into the roots with a stout wire or sharp knife.

Push along vegetables by frequent applications of nitrate of soda, or liquid manure—especially cabbages for fall consumption. Cultivate often, always two days after a rain to prevent a hard crust forming above the plants. A dust mulch is important and a mulch of grass clippings at the base of Sweet Peas keeps them cool and moist throughout the hot days. A fine mulch of well rotted cow manure can be placed around the Roses. Do not stimulate them after August, however, as they will make new wood which would be too tender to withstand the cold of winter.

Summer pruning is most essential. Rotten limbs can be more readily detected when the trees and shrubs are in leaf. Go over the orchard carefully to cut these away, also suckers at base of trees and any superfluous limbs so as to let in the air and sunlight. Thin out the fruit if the limbs are over-

(Continued on page 332)



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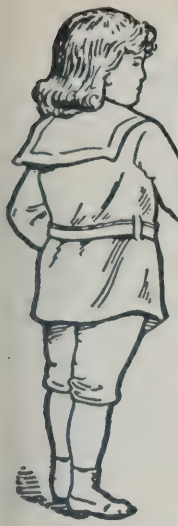
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Mid-Summer Catalogue

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(Concluded from page 328)

crowded so as to relieve the weight on the limbs to prevent breaking and also to have finer and larger fruit.

Early flowering shrubs should be pruned now; these include Forsythias, Lilacs, Pyrus, Spiraeas, etc.

FOOD CROPS FOR WINTER STORAGE

Plant this month succession of those crops that have the highest food value both for man and beast. Sweet potatoes are more nutritious than Irish potatoes, are free from insects and diseases, but need a sandy loam. They can be stored in a cool cellar which has good circulation of air. Beans and peas are rich in protein and should be planted in large quantities. They can be dried and stored in attics in paper bags hung to the ceiling for winter use. Continue to plant dwarf lima beans, Burpee's Stringless snap beans, and navy beans, Eclipse beet for table use, mangel wurzel (rutabaga) beets for stock, late cabbage plants and winter cabbage seed in cold frames to be transplanted later. Plant celery plants in trenches (see July, 1915 number of THE GARDEN MAGAZINE).

Sow in a row, and quite thinly, Witloof chicory. Thin out later to five inches apart in the row. In the fall cut off tops to within two inches of the crown, dig up roots and pack in sand in a cool cellar; or leave in ground, to be taken up throughout the winter as needed. Take up a few at a time, pack in a box in rich soil and water them and place in a warm dark cellar or turn box over them to keep dark, to sprout and blanch.

Sow thinly in rows Red-top turnips and sow broadcast Large White Norfolk turnip for salad. Sow latter part of month Norfolk Savoy spinach. Sow broadcast cow peas both for food and to turn under the vines for green manure after peas are gathered. Sow crimson clover on all garden plots that will be unused during the winter. Sow rape for hogs and sheep and mix Sunflower seed and buckwheat and sow broadcast for chickens. Sorghum is also valuable for stock sown broadcast, to be chopped up for feed or in rows thinly, to develop into canes to crush out for sugar and molasse sand the seed to mix with feed for stock.

Jerusalem artichoke tubers should have been planted in April like potatoes. They can be kept in the ground all winter and dug as needed. They are excellent as feed for hogs and chickens but are also good as a table dish creamed and especially good if pickled.

Plant late potatoes now; Green Mountain is a good keeper. Plant if possible where the early peas stood and if the vines were turned under, the soil will be in fine condition for the potatoes. Incorporate in the soil a good commercial fertilizer.

Asparagus should be allowed to grow after the first of June, a good layer of salt thrown over the beds, which kills weeds and is otherwise beneficial to asparagus. A good fertilizer or well rotted cow manure should be scattered over the beds and weeds kept down and the tops cut off and burned before the seeds fall.

Plant cauliflower and brussels sprouts for winter use. Transplant the Asters from the cold frames to the flower border. Trim off the weak shoots from Dahlias and pinch off lateral branches of Chrysanthemums, making one good strong plant. Feed constantly with liquid manure. Keep aphid off by a strong stream of water from the hose. Pinch back Cosmos to make stocky, bushy plants.

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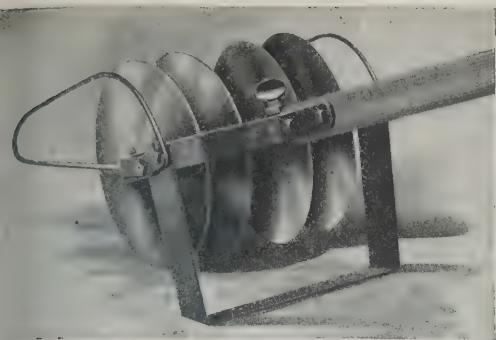
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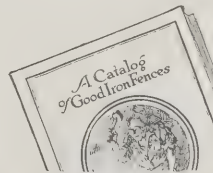
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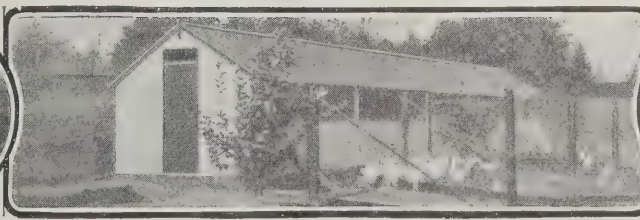
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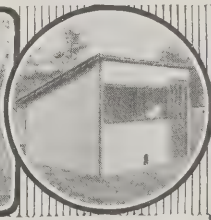
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COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in July

(Following dates are meetings unless otherwise specified)

- *Minnesota Garden Flower Society at Wild Flower Garden, Glenwood Park, by announcement.
- 2. Lenox, Mass., Garden Club.
- 3. New Bedford, Mass., Horticultural Society.
- 3. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Pleasantville, N. Y.
- 5. Marshfield, Mass., Garden Club.
- Garden Club of Lawrence, Lawrence, L. I. Lecture: Small Trees and Shrubs Suitable for the Garden.
- 6. Pasadena, Cal., Horticultural Society.
- 7-8. Rumson Flower Show, Sea Bright, N. J.
- Massachusetts Horticultural Society, Boston, Mass. Sweet Pea Exhibition.
- American Sweet Pea Society, Boston, Mass. Annual Exhibition.
- 9. Park Garden Club, Flushing, L. I.
- Rochester, N. Y., Florist Association.
- New Rochelle, N. Y., Garden Club.
- New York Florists' Club, New York City, N. Y.
- 10-11. Lenox, Mass., Horticultural Society. Summer Show.
- 11. Short Hills, N. J., Garden Club.
- Lenox, Mass., Horticultural Society.
- 13. Nassau Co. Horticultural Society, Glen Cove, L. I.
- Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
- 14. Dobbs Ferry, N. Y., Horticultural Society.
- 14-15. Horticultural Society of New York, New York City, N. Y. Exhibition and Lecture.
- 16. Lenox, Mass., Garden Club.
- 19. Marshfield, Mass., Garden Club.
- 20. Pasadena, Cal., Horticultural Society.
- California Dahlia Society, San Francisco, Cal.
- 23. Park Garden Club, Flushing, L. I.
- 28. Dobbs Ferry, N. Y., Horticultural Society.

American Rose Society at Washington

IT WAS a great gathering of rosarians at the Arlington Testing Gardens on June 4th. The judges noted the following Roses as worthy of special mention:

Teas and Hybrid Teas: Laurent Carle, Gruss an Teplitz, Lieutenant Chauré, Mary Countess of Ilchester, Mme. Paul Euler, Dorothy Page Roberts, Mme. Jules Graveraux, Lady Ursula, La Tosca, Mrs. Wakefield Christie-Miller, Lady Ashtown, Gustave Grunerwald, Countess of Gosford, Koenigin Carola.

Dwarf Polyantha: Katherine Zeimet, Baby Tausendschoen, Ellen Poulsen, Mrs. Wm. H. Cutbush, Baby Dorothy, Triomphe Orleansaise. Climbers: Countess M. H. Choteck and Bess Lovett.

Assistant Secretary of Agriculture, Carl Vrooman, spoke earnestly on the general outlook, and while impressing upon his hearers the solemnity of the national crisis he urged at the same time that the task be approached on a sane and not hysterical basis.

"Nothing will go on the same as usual. I do not object to an occasional flower garden being plowed up for the sociological effect of it. Roses and flowers are something we need, that we must have; they are a part of our war programme as well as our peace programme. But even more than these things must we have the fundamental essentials of living. As much as I love Roses, if it were for me to choose between Roses and bread I believe I would take the latter, and so would you, but that time has not come, and I hope it never will."

Peony Society at Philadelphia

THE meeting and exhibition on June 13th and 14th met local conditions favorably and there was a first-class display of blooms. In particular, the following were of superlative quality: Jubilee (Pleas), Walter Faxon (Richardson), Martha Bulloch (Brand), and the European La Cygne.

The visitors were enabled to see a splendid bloom of the yellow Hybrid Tree Peony La Lorraine, from Mr. Farr, which is a butter-yellow with maroon-red base to each petal.

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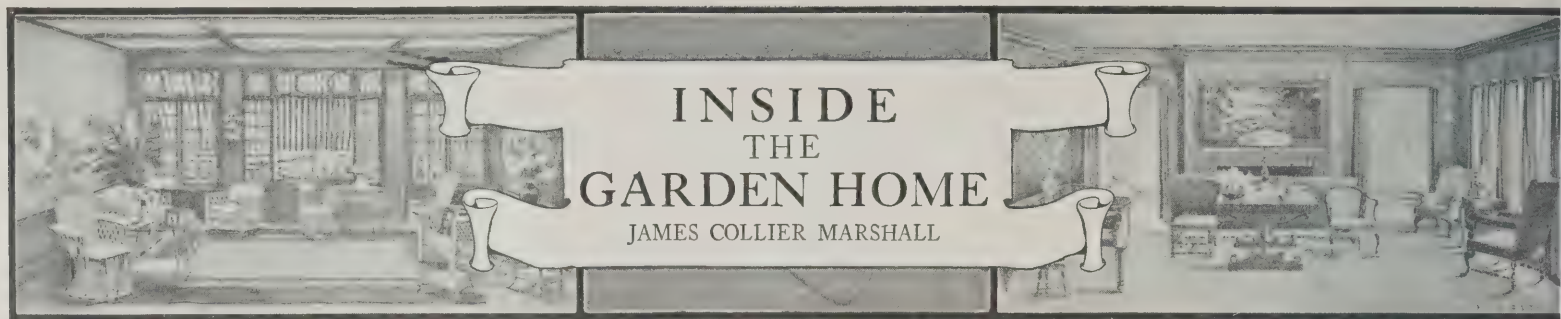
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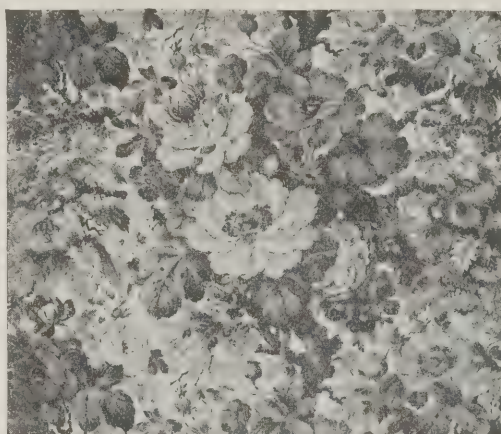
FURNISHING THE PORCH FOR SUMMER

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

THERE are as many ways of decorating a summer porch as there are different types of porches to decorate, though in every case the ideas of restfulness in the matter of color scheme and actual physical comfort as to furnishing are common to all types and are found in the same manner; that is, by careful forethought and pre-arrangement.

Like schemes for the interiors, the color should be decided upon first. Open porches are so exceptional to-day that they need not be discussed in this regard. In the enclosed porch, that is, those glazed as well as the screened ones, the outside finish of the house forms one wall of the sun room. However, if this were an enclosed porch, I should not hesitate in changing its tint or even texture to suit my taste in color. For if the wall is not absolutely satisfactory, no amount of furnishing will be able to make it restful.

Let us assume that this is a rectangular room, about 16 x 20, with two doors, giving into it from the living room; three sides opened with casement windows fully screened, to be left open most of the time. This means that your woodwork inside must be painted to match the wall. Usually this is a distemper, either putty, gray or a grayish white. Yet, if there is much light, this very light paint is liable to be trying and if one is to have any comfort, the curtains must necessarily be kept drawn, a condition quite out of the question in hot weather. Hence, we must tone down our walls to suit the amount of light, using cool colors instead of gray or white. There is nothing more beautiful than apple green for this use. And white walls, with sky-blue trimmings are remarkably fine. One of the nicest porches I have seen in recent years was white—one whose very high ceiling was brought down by painting it a splendid sky-blue. Against the white wall was arranged an old-fashioned long settee, painted the same luminous color, decorated with white, flanked by a white and blue striped wicker table and chair, the latter being cushioned with a cretonne that lent color while exactly working into the scheme. This blue and white, with dashes of flowered cretonne was carried throughout most success-



There is a full-blown summery feeling in this fine cretonne, \$1.15, whose rich and fresh colors are ideal for sun room use



A reed table with a solid wood top is a real need for the summer porch. This one striped blue and white, costs \$15. Chair \$11.50

fully. Of course, it was most unusual, but all the more worth while because of that.

Imagine what one can do by combining one of the gay colors with white. And there is no reason why one shouldn't paint the wall and woodwork green. Just because it isn't commonly done is no reason for not following out our tastes. The thing we should regard, whether it is in good taste and appropriate.

Apple-green is the only color one can endure to paint the whole wall. Not only will one endure but enjoy very much. If this is done, a selection of sober furniture is necessary. Instead of getting all wicker, choose some wood finished in the oak that seems a trifle green. Several such pieces, lightened by some natural wicker or cane, will make the porch perfect.

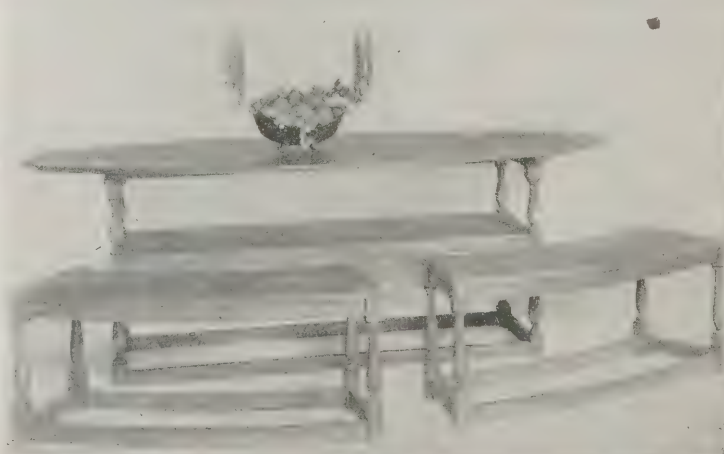
Stripes are good too, though one must be very careful of their use in a summer porch. Indeed, they are much the best thing one can put into a room that lacks life and spice.

Columns have been written about hangings for the sun room, sun porch, summer porch, etc. I am of the opinion that the shading of every porch is an individual bit of business and must be so worked out.

One cannot, without suffering, hang shades and curtains in a summer porch that has casement windows. But in the evening, when the awnings are up, there must be something to relieve the plainness of the casement. Hence, hangings—either of cretonne or some solid color—must be hung. I have seen khaki (plain, stenciled and embroidered with worsted), used to splendid effect. Also dark blue denim is effective—the green of the weave also being good. Surprising as it may be, the old blue and white striped mattress ticking makes a stunning hanging, especially where the woods are finished natural. The putty colored figured pattern used for ticking are also very good, especially the having the running vine patterns in blue. The great advantage of these materials is that they do not fade and can be put into the hands of the most merciful laundry with greatest success. Nothing hurts them.



If one is using black, a gay cretonne is necessary. This chair is very good



The porch with green painted walls should have a good deal of oak furniture. This oval table, with curved benches, can be converted into a bench by raising the board



The porch needs a comfortable writing desk and chair. This one stained, costs \$30. Chair \$10

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*Devoted to Planting and Managing the Grounds About the Home
and to the Cultivation of Fruits, Vegetables and Flowers*

Volume XXVI

August, 1917, to January, 1918



GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY

1917

INDEX TO THE GARDEN MAGAZINE

Volume XXVI—August, 1917 to January, 1918

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An asterisk (*) indicates that the article is illustrated

- Acanthopanax, 123*
 After Blooming—What? 158*
 A. L., article by, 167
 All to the Good, 6
 Allen, R. E., article by, 100
 Allison, Inga M. K., article by, 132
 American Civic Association, 102
 American Gardens, English Material for, 185
 American Hort., Organization in, 166
 American Rose Society, 166
 American Sweet Pea Society, 166
 Andrews, D. M., article and photograph by, 184
 Andromeda floribunda, 16*
 Andromeda glaucophylla, 16
 Andromeda polifolia, 16*
 Andromeda speciosa, 16*
 Angell, H. E., photographs by, 134
 Annuals, Premier of All, 166
 Antirrhinum gibraltarica, 118
 A. P. S., article by, 39
 Aphids on Your Plum Tree? 164*
 Aphis, cabbage, 10
 Apple borer, 56
 Apple trees, borers in, 10
 Apples, Topworked, 184
 Apples, wormy, 56
 Arbutus, Trailing, 16
 Arctostaphylos Uva-ursi, 15
 Ardisia, 133*, 158
 Arnold Arboretum—What It Is and Does, 122*
 Arny, L. Wayne, article by, 160
 Artemisia lactiflora, 18*
 Association, American Civic, 102
 Association, Woman's Farm and Garden, 166
 Aster?—Why Does the Beetle Attack This, 117
 Asters, 17*
 Asters, dwarf, 17*
 At the Turn of Winter, 165*
 August cover, Cashing in
 Authorized Statement of the Asst. Secretary of Agriculture, 9
 H. D., photograph by, 51
 Azalea, Indian, 159*
- Baskets filled with vegetables, 12*
 Bastin, S. Leonard, article by, 118*;
 photographs by, 90, 118, 120
 Battlefield of a Year Ago, A, 79
 Bayberry Candles, Recipe for, 172
 Beach, S. A., article by, 184
 Bean, Bush, 197*
 Bean support, 80*
 Beans, 10, 92*, 197*
 Beans, covered with cloth, 57*
 Beans on Strings, 80*
 Bearberry, 15*
 Beech collection, 123*
 Beetle; Why does it attack this Aster? 117
 Beetles, fruit-tree-bark, 56
 Beets, 10, 98, 197*
 Beets, storing, 85*
 Beginner's Garden, The, 188*
 Begonia, Gloire de Lorraine, 133*
 Begonia, Winter, 159
 Berry Cane, 195*
 Berry, Partridge, 16
 Big Events for St. Louis in 1918, 104
 Binders, Irises as Soil, 117
 Bird Bath, 118*
 Bird Bath, A Home-Made, 150*
 Bird—Brown Thrasher, 154*
 Bird, Cedar, 155*
 Bird Garden, 153*
 Bird House, 155*
 Bird, Indigo, 154*
 Birds, Encouraging the, 153*
 Birds, Shrubs attractive to, 154
 Blackberry Plant, 11
 Blackcap Raspberries, How to Get New Plants of, 96
 Blacklock, M. E., article by, 6
- Bloom, Spring Planting for Summer, 201*
 Blooming, After—What? 158*
 Blue, A Touch of, in the Fall Garden, 151
 "Bog" Gardening with Native Plants, 89*
 Bog Rosemary, 16
 Boilers, 127*, 128*
 Books, A Glance at the Garden, of the Year, 156
 Borers, 10, 11, 56
 Box Huckleberry, 16
 Box, Tulips in the Window, 41*
 Brassey-Brierley, Charlotte, article by, 39
 Bright Flowers, January cover
 Brooklyn Botanic Garden, photograph by, 89
 Brooks, John A., photographs by, 14
 Broomstick Scratcher, 40*
 Broomstick Scratcher, Comment on the, 151
 Browberry, 16
 Brown Thrasher, 154*
 Budding and Grafting—How they are done, 48
 Buddleia, New, from Seeds, 117
 Buddleias; Why they Die, 119
 Bugs, Spraying Kills Young Squash, 28
 Bulbs, 120*
 Bulbs Assured, Some, 104
 Bulbs for Twelve Months, Indoors and Outside, 43*
 Bulbs Forced in a Greenhouse, 60
 Bulbs, Gladiolus, 163
 Bulb Planter, 41*
 Bulbs, Various, 159
 Burke, Anna M., article and photographs by, 158
 Bush Bean, 197*
 Bush Cherry, New Chinese, 80*
 Bush, Spindle, 16
 Bushes, borers in quince, 11
 But, Be Reasonable, 183
 Button, H. F., article, by, 86
- Cabbage, 197*
 Cabbage Aphis, 10
 Cabbage, Chinese, 40*
 Cabbage in a trench, 83*
 Cabbage Worms, 10
 Cactus, 135*
 Calopogon, purple, 91*
 Can You Cook a Potato? 134*
 Canadian Yew, 16
 Candles, Recipe for Bayberry, 172
 Cannas, 163*
 Canning?, Is the Fireless Cooker Used in, 117
 Canning Kohlrabi, 40
 Canterbury Bells and Foxgloves, Wintering, 119
 Capsicum, 159*
 Carrots, 10, 98, 197*, 198*
 Carrots, storing, 85*
 Cary, J. H., article by, 117
 Cashing In, August cover
 Cashing-In the War Gardens, 11*
 Catalogues, Getting the Best out of the, 197*
 Cauliflowers, 98, 198
 Cedar Bird, 155*
 Cedar of Lebanon, 123*
 Celery, 198
 Celery, New Method of Wintering, 80
 Celery Culture, More About Intensive, 41
 Celery, storing, 83*
 Cercidiphyllum japonicum, 125*
 Chafers, Rose, 96
 Chamberlain, John W., article by, 6
 Cherry, Jerusalem, 158
 Cherry Leaves, blistered, 56
 Chinese Bush Cherry, New, 80*
 Chinese Cabbage, 40*
- Christmas Dollar, Making the most of the, 151
 Christmas Gifts for the Gardener, 151
 Christmas Spirit of 1917, December cover, by J. P. Verrees
 Clark, F. L., article by, 5
 Clarke, H., article by, 28
 Clearing up for Winter, 120
 Climbing Hydrangea, 185*
 Club & Society News, 24, 64, 102, 138, 167, 208
 Coal, Various Ways of Saving, 196
 Coldframe, 45*, 157*
 Collards, Extravagance of, 186
 Color, Fall; in the Rock Garden, 118
 Color of Pansies, and Hot Weather, 98
 Combinations, Practical Vegetable, 132
 Comment on the Broomstick Scratcher, 151
 Compost heap, making a, 55
 Conservation, crop, 9
 Conservation, personal pointers for, 13
 Conveniences for the Cottage, 30*
 Corn, 198
 Costich, Edwin H., article and photograph by, 15
 Cotoneaster hupehensis, 124*
 Cottage, Conveniences for the, 30*
 Cottontails, We Love Our, 6
 Cover crops, 58
 Cover crops, when to grow, 9
 Cover Design, August, by J. P. Verrees,
 Cover Designs, October, November, and December, by J. P. Verrees
 Cover Design, January, by H. W. Ortlip
 Cover Design, September, by E. D. Drake
 Covering lettuce with cloth, 57*
 Crabapple, 123*
 Craftsman Woodpecker, The, 167
 Craig, W. N., articles by, 97*, 129*
 Cranberry, Mountain, 16
 Crops, packing root, 95*
 Crop Conservation and Distribution, 9
 Crops, cover, 58
 Crops, Making Real Use of the Garden's, 132
 Crocker, Orin, photograph by, 154
 Crops, Present Sowing for Extra Early, 95*
 Crops, profitable, that can be grown under glass, 129
 Croton, Reedii, 133*
 Cucumbers, 10, 198
 Cultivation, Saving Labor in Land, 21
 Currants, 51*
 Currants, Why so Few? 5
 Cutworms, 56
 Cyclamen, 159*
 Cyclamen, My Experience with, in the House, 170
- Daffodils and Tulips Planted Late, 149
 Dahlia Festivals, 64
 Dahlia Tubers, 162*
 Darwin Tulip—Did it disappoint? 5
 Day, Curtis Fisher, article by, 40
 Daylight Saving, We Want, 183
 Day-lily, Lemon-yellow, 53*
 Dean, Mrs. J., article by, 117
 December Cover, The Christmas Spirit of 1917, by J. P. Verrees
 December in the Greenhouse, 165*
 December in the South, 168
 December preparations, 152
 Delphiniums, 17
 Destruction of Fruit Bearing Trees, 140*
 Did the Darwin Tulip Disappoint? 5
 Difficulties solved by a teaspoon, 7
 Downer, H. E., article and photograph by, 185
 Drainage; why it is important indoors, 130
 Drake, E., September cover design by
- Drosera intermedia, 90*
 Drug Plant Growing; Is it Practical? 160
 Drying fruit, 26
 Dunbar, John, article by, 6*
 Duffy, S. R., articles by, 50, 119
 Dugmore, A. R., photographs by, 90, 154, 155
 Durand, Herbert, article by, 79
- Early Start, Fall Plowing for an, 136
 Early crops, Present Sowing for extra, 95*
 E. E. S., article by, 118
 Egg-plants, 57*
 Eldredge, Arthur G., photographs by, 52, 123, 165
 Electricity for Heating Frames, 125*
 Encouraging the Birds, 153*
 English Material for American Gardens, 185
 English Primrose, 151*
 Epigaea repens, 16
 Essay, Mr. Duffy's, 118
 European Grapes for America, 79
 Evergreen shrub, 52*
 Evergreens, Native; Suitable For Ground Covers, 15*
 Evonymus obovatus, 16
 Exford, Ernest C., article by, 5
 Exhibition Season, The, 138
 Experience with Cyclamen in the House, 170
 Experiment with the Potato. An, 184
 Experimenting with Hunnemannia, 149
 Extravagance of Collards, 186
- Fairchild, M., article and photo by, 40
 Fall Canker Worm, 56
 Fall Color in the Rock Garden, 118
 Fall Garden, Touch of Blue in the, 151
 Fall Made Lawn, 41*
 Fall Planting, 51*, 81
 Fall Plowing for an Early Start, 136
 Fall Sown Sweet Peas, 80
 Farrington, E. I., article by, 40*;
 photographs by, 40, 122, 123, 124
 Fay, Albert E., article by, 186
 February, Flowers in, 117
 Ferns for House Plants, 118
 Fertilizer, Gallinaceous; Handled in a Practical Way, 50
 Festivals, The Dahlia, 64
 Fetter Bush, 16
 Few Facts, A, 117
 Fireless Cooker; Is It Used in Canning? 117
 Florists; What They Will Offer in Holiday Plants, 133*
 Flower Roots, Wintering Tender, 162
 Flower on November cover—Oncidium varicosum
 Flowers, Bright; January cover
 Flowers Every Month, 6
 Flowers for the July Garden, 201*
 Flowers in February, 117
 Food Administration, Message from the, 93
 Foliage, slugs on pear, 10
 Food Administration Poster, 9
 Food and Home Economies That Can Finance the War, 54
 Food From the Greenhouse This Winter, 97*
 For the South, 26, 62, 110, 136, 168, 204
 Forcing Bulbs in a Greenhouse, 60
 Forest Hill Road, 123*
 Foxgloves, Wintering Canterbury Bells and, 119
 Frame, 47*
 Frames, Electricity for Heating, 125*
 French Orchardists, Helping the, 140*
 Fresh Vegetables; Using them wisely, 126
 Frost, protection from, 57

INDEX TO THE GARDEN MAGAZINE

- Fruit Bearing Trees, Destruction of, 140*
- Fruit, dried, 26
- Fruit, Planning for—This Year and After, 112*
- Fruit-Tree-Bark Beetles, 56
- Fruiting Shrubs, Two; for the Home Garden, 79*
- Fruits and Vegetables; Using them wisely, 87*
- Fuel Problem, Solving the, 196
- Fumigator, Home-Made Potted Plant, 184*
- G. W. A., article by, 41
- Garden, Touch of Blue in the Fall, 151
- Garden, backyard, 92*
- Garden, bird, 153*
- Garden Books of the year, A Glance at the, 156
- Garden Club Journal, International, 150
- Garden debris, use of, 96
- Garden Efficiency, Water to Increase, 13*
- Garden Enemies, 28
- Garden, Fall Color in the Rock, 118
- Garden, Flowers for the July, 201*
- Garden; getting it under glass, 130*
- Garden Home, Inside the, 30*, 108*, 174*
- Garden "Movies" No. 1, 189*
- Garden Products Stored for the Winter, 83*
- Garden, Rose; for Portland, Ore., 24
- Garden Soil, Making Next Year's, Better, 86
- Garden, suburban, 55*
- Garden, the August, 9
- Garden, The Beginner's, 188*
- Garden, Patriotic, 9*, 55*, 93*, 191*
- Garden, Two Fruiting Shrubs for the Home, 79*
- Garden, Methods of Scientific Management Applied to the Vegetable, 191*
- Garden, Plans for Vegetable, 200, 201
- Garden, War; Make it Attractive, 200*
- Gardener's Winter Pastime, A, 120
- Gardening, "Bog," with Native Plants, 80*
- Gardening for the winter, 42
- Gardening from the Outside, 81
- Gardening, High Pressure Vegetable, 100
- Gardens Add \$100,000,000 to Nation's Wealth, 93*
- Garden's Crops, Making Real Use of the, 132
- Gardens, English Material for American, 185
- Gardens, rock, 45
- Gardens, war, 11*
- Garekol, S. H., articles by, 106, 136
- Gaylussacia brachycera, 16
- Gentian, Closed, 90*
- Geraniums, 162*
- Getting the Garden Under Glass, 130*
- Geyer, O. R., article by, 93*
- Gifts, Holiday; that the Gardener Can Send, 172
- Ginder, J. W., article by, 80
- Gladiolus, 162*
- Gladiolus Bulbs, 163
- Glance at the Garden Books of the Year, A, 156
- Gloire de Lorraine Begonia, 133*
- Goodwin, Frank E., article and photographs by, 21, 22
- Gooseberries, 51*
- Grafting, 48
- Grapes, 51*
- Grapes, European, for America, 79
- Graves, Nathan R., photographs by, 6, 16, 17, 18, 40, 51, 53, 80, 93, 150, 151, 153, 158, 159, 195
- Great Hort. Meeting in New York, 24
- Greenhouse, 43*, 97*, 128*, 129, 165*
- Greenhouse Activities in December, 165*
- Greenhouse bench, 45*
- Greenhouse boiler, 127*
- Greenhouse, Bulbs Forced in a, 60
- Greenhouse, Food from the, This Winter, 97*
- Greenhouse Heating, Little Chat on, 127*
- Greenhouse, Inside the, November cover, by J. P. Verrees
- Greenhouse That Isn't Heated, 129*
- Greenhouse; With Oncidium varicosum, November cover; by J. P. Verrees
- Greenhouses, Hardy Primulas for Unheated, 150*
- Ground-Covers, Native Evergreens Suitable for, 15*
- Grubs, white, 56
- H. G. R., article by, 117
- Habenaria, 89*
- Habenarias This Season, 79
- Hall, E. J., photograph by, 55
- Hammond, Benjamin, Portrait, 81
- Handling Gallinaceous Fertilizer in a Practical Way, 50
- Hardy Primulas for Unheated Greenhouses, 150*
- Hardy Yellow Rose, The, 117
- Harris, Mrs. Floyd W., article by, 117
- Harvest is Gathered, October Cover, by J. P. Verrees
- Has No Rival, 81
- Heather?, Who Succeeds with, 5
- Heating Frames, Electricity for, 125*
- Heating, Little Chat on Greenhouse, 127*
- Heating material, 125*
- Hedge of Lupins, 39
- Helenium, 53*
- Heliotrope, 202*
- Helping the French Orchardists, 140*
- Hemerocallis citrina, 53*
- Hopkins, W., photograph by, 153
- Herbaceous Plants, Wintering, 39
- High Pressure Vegetable Gardening, 100
- Holes, flute-like, 10
- Holiday Gifts that the Gardener Can Send, 172
- Holiday Plants, What the Florists Will Offer in, 133*
- Hollyhock Chain, The Topeka, 149*
- Hollyhocks, 202*
- Home, Inside the Garden, 30*, 108*, 174*
- Home Garden, Two Fruiting Shrubs for the, 79*
- Home-made Bird Bath, 150*
- Home-made Potted Plant Fumigator, 184*
- Hood, G. W., article and photographs by, 13, 14
- Horticulture, Organization in American, 166
- Hotbed, 157*
- Hotbed Frame 126*
- House, Bird, 155*
- House, My Experience with Cyclamen in the, 170
- House Plant, Marsh Marigold as a, 7
- House Plants, Ferns for, 118
- House, Some Good Things for the Small, 108*, 174*
- Hovey, E. von R., article by, 170
- How Budding and Grafting are Done, 48
- Huckleberry, Box, 16
- Hunnemannia, Experimenting with, 149
- Hydrangea petiolaris, 122*
- Hydrangea, The Climbing, 185*
- I Say: Sow Sweet Peas in the Fall for Early Bloom, 47*
- Importance of drainage indoors, 130
- Indian Azalea, 150*
- Indigo Bird, 154*
- Ingredients, mixing soil, 131*
- Inside the Garden Home, 30*, 108*, 174*
- Inside the Greenhouse, November Cover, by J. P. Verrees
- International G. C. Journal, 150
- Iris, Spanish and German, from seed, 5
- Irises as Soil Binders, 117
- Irises, Modern; That Outclass the Old, 18
- Irrigation systems, 13*
- Is Drug Plant Growing Practical? 160
- Is the Fireless Cooker Used in Canning? 117
- January Cover, Bright Flowers
- January planting, 187
- Jerusalem Cherry, 158
- Journal, International G. C., 150
- July Garden, Flowers for the, 201*
- Juniper collection, 123*
- Kains, M. G., articles by, 51*, 194*; photographs by, 195
- Kale, 10
- Kalmia angustifolia, 16
- Kalopanax ricinifolium, 123*
- Keeping It When You've Got It, 83*
- Kerr, G. W., articles and photographs by, 47*, 80;
- Kift, Robert, article by, 133*
- Kirkpatrick, E. L., article and photograph by, 167
- Knoch, A. A., article by, 117
- Kohlrabi, Canning, 40
- Kruhm, A., article by, 157*
- Kunderd, A. E., Portrait, 81
- L. B., articles by, 64, 39, 40*
- L. G. B., article and illustration by, 184
- L. M., article by, 6
- Labor, Saving, in Land Cultivation, 21*
- Ladies' Tresses, 90*
- Land Cultivation, Saving Labor in, 21*
- Larkspur, Moerheim's, 18*
- Late M. Vilmorin, The, 64
- Late Strawberry Planting, 41
- Laurel, Sheep, 16, 91*
- Lawn, fall made, 41*
- Lawns, 93*
- Leaders of the Societies, 81*
- Leaves, beautiful, 160
- Leiophyllum buxifolium, 16*
- Lettuce, covered with cloth, 57*
- Lettuce, 10, 57, 98, 131*, 193*, 199*
- Leucocrinum montanum, 184*
- Leucothoe Catesbaei, 16
- Lilies, Day, 53*
- Lily, The Sand, 184*
- Little Chat on Greenhouse Heating, 127*
- Long and The Short, The, 184
- Lounsberry, Alice, article by, 153*
- Lupins, A Hedge of, 39
- M. G. K., article by, 184
- MacArthur, J. N., article by, 127*
- MacCalbane, H. L., article by, 185
- Mackay, A. W., article by, 117
- McCausland, Arthur, article by, 184
- McClelland, W., article by, 79
- McCollum, W. C., articles by, 43*, 125*, 165*, 188*; diagrams by, 126; photographs by, 43, 44, 45, 46, 49, 83, 85, 92, 95, 96, 97, 162, 163, 189
- Machine, spray, 14*
- Machines, 21*
- Magnolia Salicifolia, 6*
- Make Your War Garden Attractive, 200*
- Making a Lawn in Fall, 41*
- Making Next Year's Garden Soil Better, 86
- Making Real Use of the Garden's Crops, 132
- Making the Christmas Dollar Buy a Dollar's Worth, 151
- Making the Smallest Quantity Reach the Farthest, 191*
- Malus theifera, 123*
- Map of Convention Garden 1917, 24
- Map showing earliest recorded frosts, 57
- Maples, 124*
- Marsh Marigold as a House Plant, 7
- Marshall, James Collier, articles by, 30*, 108*, 174*
- Meconopsis integrifolia, 118*
- Meeting of Women Horticulturists at Chicago, 104
- Meller, C. L., articles and photographs by, 41, 135
- Melons, 10, 198
- Merrell, Nellie D., article by, 6
- Message from the Food Administration, 93
- Methods of Scientific Industrial Management Applied to the Vegetable Garden, 191*
- Milk-flowered Ragweed, 18*
- Mixing soil ingredients, 131*
- Modern Irises That Outclass the Old, 18
- Moerheim's Larkspur, 18*
- Monkshood, 18*
- Month's Reminder, 7, 42, 81, 120, 152, 187
- More About Intensive Celery Culture, 41
- Morus acidosa, 80
- Mulberry, 80
- Mulching—Successful and Otherwise, 167*
- Mushrooms, 98
- Musser, M. J., photograph by, 199
- My Experience with Cyclamen in the House, 170
- Myrtle, Sand, 16*
- N. S., article by, 41
- Nash, G. N., map by, 24
- Native Evergreens Suitable for Ground-Covers, 15*
- Native Plants, "Bog" Gardening with, 89*
- Neat Stake, 128
- Nettelroth, Cleo L., article and photographs by, 150
- New Buddhaie or Summer Lilac from Seeds, 117
- New Hybrid Tree Peony, 40*
- New Method of Wintering Celery, 80
- New York Spring Show, 138
- Northend, M. H., photographs by, 12
- November Cover, The Greenhouse; with Oncidium varicosum, by J. P. Verrees
- November in the South, 136
- Nozzle, 14*
- October Cover, The Harvest is Gathered, by J. P. Verrees
- Old-Time Southern Recipes, 26, 62
- Oncidium varicosum—Flower on November cover
- One Successful "War Garden" Effort, 91*
- Onions, 57, 198
- Operations, December, 152
- Orchardists, Helping the French, 140*
- Orchid, Fringed, 89*
- Orchid, Yellow Fringed, 91*
- Orders of the Day, 96
- Organization in American Hort., 166
- Original Sundial, An, 118*
- Ornamental Pepper, 150*
- Ortliip, H. W., January Cover by
- Out of Season Transplanting, 6
- Pack, Charles Lathrop, article by, 186
- Packing root crops, 95*
- Pansies all the Year in Tennessee, 39
- Pansies, Color of, and Hot Weather, 98
- Parsnips prepared for storage, 85*
- Pastime, A Gardener's Winter, 120
- Parsnips, storing, 85*
- Partridge Berry, 16
- Patch, Edith M., article and photographs by, 164
- Patriotic Garden, 9*, 55*, 93*, 191*
- Patterson, J. M., articles by, 26, 62, 110, 136, 168, 204
- "Pay Your Money and Take Your Choice," 17*, 53*
- Peach borer, 56
- Pear foliage, slugs on, 10
- Pear, Prickly, 135*
- Pear Psylla, 56
- Peas, 10, 57, 98, 198
- Peony, A Yellow Tree, 40*
- Peony La Lorraine, 40*
- Peony, New Hybrid Tree, 40*

INDEX TO THE GARDEN MAGAZINE

- Peonies, Plant, in September, 49*
- Peonies that Fit, 39
- "Peonies that Fit," Regarding, 79
- Pepper, Ornamental, 159*
- Pepper Vine, 184
- Peppers, 198
- Perennials, hardy, 17*, 53*
- Pests, general attention to, 98
- Peterson, W. J., photograph by, 133
- Phloxes, 53
- Pitcher Plant, 90*
- Plan to Plant—The Call of 1918, 186
- Planning for Fruit This Year and After, 194*
- Plans for vegetable garden, 200, 201
- Plans, planting, 192, 193
- Plant, a "leggy," 118*
- Plant, Drug, 160
- Plant Fumigator, Potted Home-Made, 184*
- Plant Now—or Wait Till Spring? 51*
- Plant Peonies in September, 49*
- Plant, Pitcher, 90*
- Plant, Plan to, 186
- Plant, raspberry, 11
- Planter, A Bulb, 41*
- Planting, August, 7, 10
- Planting, December, 152
- Planting, Fall, 81
- Planting for the South, 110, 136, 168, 204
- Planting, January, 187
- Planting, Late Strawberry, 41
- Planting, November, 120
- Planting, October, 81
- Planting plans, 192, 193
- Planting, September, 42, 51*, 55
- Planting, Spring, for Summer Bloom, 201*
- Planting Table, vegetable, 194
- Planting to attract birds, 153*
- Planting Tulips and Daffodils Late, 149
- Planting Vegetables in Autumn, 106
- Plantings, late, 42
- Plants, Ferns for, House; 118
- Plants, Making the most of the Holiday Gift, 158
- Plants, Room; Why They Become Leggy, 118*
- Plants, What the Florists Will Offer in Holiday, 133*
- Plants, Where to Obtain Rare, 149
- Plants, Wintering Herbaceous Plants, 39
- Plot, vegetable, 200*
- Plowing, Fall, for an Early Start, 136
- Plum Tree, Aphids on your, 164*
- Poinsettia, 158*
- Pomologists to Meet At Boston, 102
- Poppies, Oriental, 53
- Poppywort, A Rare, 39
- Poster, Food Administration, 9
- Potato, 134*
- Potato, An Experiment with the, 184
- Potato, Can You Cook a, 134*
- Potatoes before storing, 83*
- Potatoes, The Storage of, 168
- Potted Plant Fumigator, Home-Made, 184*
- Potting, 44*
- Premier of All Annuals, 166
- Preparation for winter, 81
- Preparations, December, 152
- Presby, F. H., articles by, 149, 151
- Present Sowing for Extra Early Crops, 95*
- Prickly Pear, 135*
- Primrose, 160
- Primrose, English, 151*
- Primula cashmeriana, 151*
- Primulas, Hardy, for Unheated Greenhouses, 150*
- Protection from frost, 57
- Protection, Winter, 135*
- Provost, B.S., article and photos by, 118
- Prunus tomentosa, 80*
- Putting the Rose on the Map, 166
- Quince bushes, borers in, 11
- Quinces, wormy, 10
- R. R. A., article and photograph by, 41
- Radishes, 10, 57, 98, 108
- Ragweed, Milk-flowered, 18*
- Ramsey, Leonidas Willing, article and plans by, 200, 201
- Rare Plants, Where to Obtain, 149
- Rare Poppywort, 39
- Raspberry plant, 11
- Recipe for Bayberry Candles, 172
- Recipes, Old-Time Southern, 26, 62
- Recruit, Training the, September cover, by E. D. Drake
- Regarding "Peonies That Fit," 79
- Reid, Buford, article by, 149
- Ridsdale, P. S., article by, 79
- Road, Forest Hill, 123*
- Robinson, Effie M., article by, 134*
- Rock Garden, Fall Color in the, 118
- Rock Gardens for the Connoisseur, 45
- Rockery, 46*
- Rockwell, F. F., articles by, 11*, 83*, 130*; illustrations by, 84, 130
- Rolfe, H. Parker, photograph by, 199
- Room Plants; When They Become Leggy, 118*
- Root Crops, packing, 95*
- Root-vegetables in a trench, 83*
- Roots, storing, 163*
- Roots, Wintering the Tender Flower, 162*
- Rose chafers, 96
- Rose Garden for Portland, Ore., 24
- Rose, Putting the, on the Map, 166
- Rose, The Hardy Yellow, 117
- Rosemary, Bog, 16
- Rowland, E. H., articles by, 184, 186
- Rutledge, A., articles by, 80, 120
- S. F. H., articles by, 7, 80*, 149
- S. L. B., article and photograph by, 41
- Sage, pale blue, 53*
- Salvia, 54
- Salvia azurea, 53*
- San José Scale, 56
- Sand Lily, The, 184*
- Sand Myrtle, 16*
- Sargent, C. S., article by, 122*
- Saving Labor in Land Cultivation, 21*
- Schoyer, B. Preston, article by, 118
- Scientific Industrial Management, Methods of, as Applied to the Vegetable Garden, 191*
- Scratcher, A Broomstick, 40*
- Seed Order and the Tangle of Varieties, Your, 197*
- September cover, Training the Recruit, by E. D. Drake
- Seeds, New Buddleia or Summer Lilac from, 117
- September, Plant Peonies in, 49*
- Sheep Laurel, 16, 91*
- Show, New York Spring, 138
- Shrubs Attractive to Birds, 154
- Shrubs, Two Fruiting, for the Home Garden, 79*
- Sinclair, G. H., photograph by, 154
- Skinner, C.D., article and photo by, 149
- Slugs on pear foliage, 10
- Small House, Some Good Things for the, 108*, 174*
- Smallest Quantity; Making it reach the farthest, 191*
- Snapdragons, 118
- Sneezeworts, 53*
- Society, American Rose, 166
- Society, American Sweet Pea, 166
- Societies, Leaders of the, 81*
- Soil Binders, Irises as, 117
- Soil ingredients, mixing, 131*
- Soil, Making Next Year's Garden, Better, 86
- Solving the Fuel Problem, 196
- Some Bulbs Assured, 104
- Some Good Things for the Small House, 108, 174*
- South, Planting for the, 110, 136, 168, 204
- Sowing, Present, For Extra Early Crops, 95
- Spanish and German Iris From Seed, 5
- Speck, Private A., article by, 79
- Spice Sweet and Sweet Bough, 120
- Spinach, 10, 57, 108
- Spindle Bush, 16
- Spray Engineering Co., photos by, 14
- Spray machine, 14*
- Spraying Kills Young Squash Bugs, 28
- Spring, F., article and photo by, 201, 202
- Spring Planting for Summer Bloom, 201*
- Sprinkler, 13*
- Squash, 198
- Squash Bugs, Spraying Kills Young, 28
- Stake, 41*
- Stake, A Neat, 128
- Standpipes, 13*
- Steed, T. J., photograph by, 157
- Stoddard, G. O., photograph by, 125
- Storage, 83*
- Storage of Garden Products for the Winter, 83*
- Storage of Potatoes, 168
- Storing beets, 85*
- Storing carrots, 85*
- Storing celery, 83*
- Storing parsnips, 85*
- Storing, potatoes before, 83*
- Storing roots, 163*
- Storing Tender Flower-Roots, 162*
- Strawberry Glen Mary, 20*
- Strawberry Planting, Late, 41
- Strawberry Specialist's Intensive "Systems," 20*
- Streptosolen Jamesoni as a Standard, 150*
- String Beans, 98
- Sturtevant, R. S., article by, 118
- Summer Bloom, Spring Planting for, 201*
- Summer Lilac (New Buddleia) from Seeds, 117
- Sundew, 90*
- Sundial, An Original, 118*
- Sweet Bough, Spice Sweet and, 120
- Sweet Corn, and "Sweet" Corn, 185
- Sweet Peas, Fall Sown, 80
- Sweet Peas Sown in the Fall for Early Bloom, 47*
- Systems of a Strawberry Specialist, Intensive, 20*
- Table, vegetable planting, 194
- Tabor, Grace, article and planting plans by, 191, 192, 193
- Taylor, Norman, article and photographs by, 89, 90
- Tealdi, Aubrey, article by, 81
- Thalictrum dipterocarpum, 54
- Thatcher, A. E., article and photograph by, 119
- Thomas, F. M., articles by, 17*, 39, 53*
- Tomatoes, 96*, 108*, 199*
- Tomlinson, B. N., articles by, 5, 39
- Tools to use during January, 189*
- Topeka Hollyhock Chain, 149*
- Topworked Apples, 184
- Totty, Charles H., Portrait, 81
- Touch of Blue in the Fall Garden, 151
- Tractors, 21*
- Trailing Arbutus, 16
- Training the Recruit, September cover, by E. D. Drake
- Transplanting, Out of Season, 6
- Tree Peony, A Yellow, 40*
- Tree Peony, New Hybrid, 40*
- Trees attractive to birds, 154
- Trench, outdoor, 43*
- Trench, root-vegetables in a, 83*
- Tresses, Ladies', 90*
- Troth, H., photographs by, 133, 197
- Trumbull, E. E., article by, 117
- Tuberose, 163*
- Tubers, Dahlia, 162*
- Turnips, 10, 57, 199
- Tulips and Daffodils Planted Late, 149
- Tulips in the Window Box, 41*
- Two Fruiting Shrubs for the Home Garden, 79*
- Tyler, Jas. E., photograph by, 197
- Under Glass Culture, Vegetables for, 157*
- Under Glass, Getting the Garden, 130*
- Unheated Greenhouse, 129*
- Unheated Greenhouses, Hardy Primulas for, 150*
- Uni-Ford Tractor, photograph by, 22
- United States Dept. of Agriculture, photographs by, 88
- Using Fresh Vegetables Wisely, 126
- Using Fruits and Vegetables Wisely, 87*
- VanGelder, H. E., article and photograph by, 80
- Vaccinium vitisidaea, 16
- Valentine, F. H., articles by, 20*, 184; photograph by, 20
- Vegetable combinations, practical, 132
- Vegetable Gardening, High Pressure, 100
- Vegetable Garden, Methods of Scientific Management Applied to the, 191*
- Vegetable Garden, plans for, 200, 201
- Vegetable planting table, 194
- Vegetable plot, 200*
- Vegetables and Fruits; Using them wisely, 87*
- Vegetables for Under Glass Culture, 157*
- Vegetables, Fresh; Using them wisely, 126
- Vegetables Planted in Autumn, 106
- Vegetables, root, in a trench, 83*
- Vegetables, why they spoil, 83
- Verrees, J. P., August, October, November, January cover designs by, Verrees, J. P., photograph by, 11
- Viburnum opulus, 153*
- Vilmorin, The Late M., 64
- Vincent, Jr., Richard, Portrait, 81
- Vine, Pepper, 184
- Vines, 52*
- Vrooman, Carl, Authorized Statement by, 9
- W. M., article by, 81
- W. N. C., articles by, 118, 119, 150*
- Wait, Walter J., article by, 128
- Walter, F. A., photographs by, 49
- War Garden; Make it Attractive, 200*
- "War Garden" Effort, One Successful, 91*
- War Gardens, Cashing-In the, 11*
- War Gardens; What they really mean, 93*
- Water to Increase Garden Efficiency, 13*
- We Love Our Cottontails, 6
- We Want Daylight Saving, 183
- West., Geo. P., photographs by, 21
- What the Florists Will Offer in Holiday Plants, 133*
- When a Teaspoon Solves Difficulties, 7
- When Room Plants Become Leggy, 118*
- Where to Obtain Rare Plants, 149
- White, Chas. E., photograph by, 155
- White grubs, 56
- Whiting, W. J., article by, 7
- Who Succeeds with Heather? 5
- Why Buddleias Die, 119
- Why Does the Beetle Attack this Aster? 117
- Why So Few Currants? 5
- Wilder, Louise Beebe, article by, 120
- Willard, S. F., article by, 151
- Wilson, E. V., article by, 162*
- Window Box, Tulips in the, 41*
- Winter, At the Turn of, 165*
- Winter Begonia, 159
- Winter Pastime, A Gardener's, 120
- Winter preparation, 81
- Winter protection, 135*
- Wintering Canterbury Bells and Foxgloves, 119
- Wintering Celery, New Method of, 80
- Wintering Herbaceous Plants, 39
- Wintering Tender Flower Roots, 162*
- Wire worms, 56
- Wolff, Wm. H., article by, 48
- Woman's Farm and Garden Assn., 166
- Women Horticulturists' Meeting at Chicago, 104
- Wood, Jos. L., article by, 5
- Woodpecker, 155*, 167
- Yellow Fringed Orchid, 91*
- Yellow Tree Peony, 40*
- Your Seed Order and the Tangle of Varieties, 197*
- Zenobia, 16*

PLANTING IN THE WAR GARDENS

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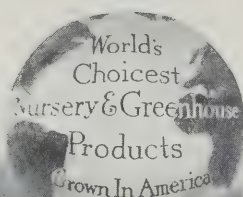
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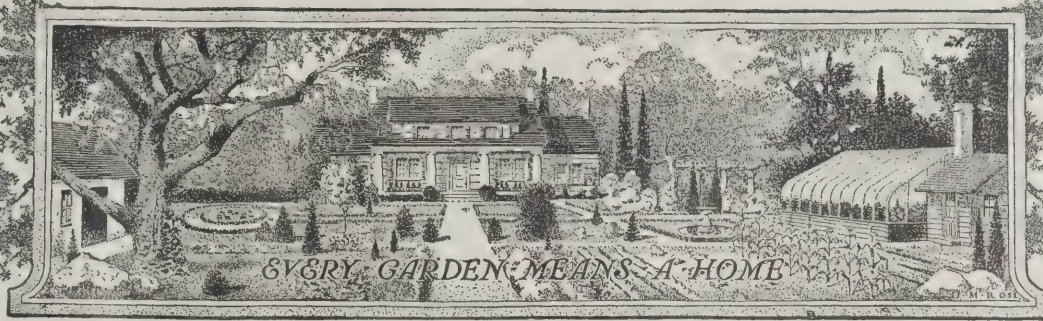
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AMONG OUR GARDEN NEIGHBORS

Did the Darwin Tulip Disappoint?—Are there any GARDEN MAGAZINE readers, others than myself, who have been particularly disappointed in their Darwin Tulips this year?

A large proportion of bulbs in my beds, in some amounting to nearly half, sent up a flourishing bunch of leaves but no flowers. This trouble was not confined to the older beds, but all seemed to be affected more or less without regard to age. Several other Tulip raisers in this section report the same trouble, and as none of them can give an explanation, I wish some fellow reader would enlighten me as to the cause and the remedy, if there is a remedy. Is it due to the peculiar season or to some disease which has attacked the bulbs, and will they probably flower all right next year? Am a great lover of tulips but an amateur at the business of raising them, and any advice would be gratefully received.—*Ernest C. Exford, Pittsfield, Mass.*

[No disappointment with us, indeed! Perhaps the bulbs you received had suffered in transit. If, as did happen to some cargoes last fall, they were delayed and heated on shipboard that would account for the failure to bloom.—*Ed.*]

Why So Few Currants?—A few years ago we purchased for garden purposes a small plot of ground that had been in garden for several years. A row of currant bushes was growing along one side. We debated whether to dig them up and decided to let them grow another year as "we were all fond of currant jelly." That summer raspberries and blackberries were scarce and high-priced and we turned to our currants to supply us with fresh fruit. We did not expect to relish them especially, but to our surprise found them very appetizing, particularly for breakfast, having as they do the tartness which the general use of oranges and grapefruit has demonstrated the morning appetite craves. The bushes bore for more than a month and during that time currants were on our breakfast table each morning. The more we ate of them the better we liked them. It was with real regret that the last were picked.

That fall in discussing garden plans instead of debating whether to grub out the currants we decided to give them particular attention. A horticulturist was hired to prune them and on his advice the following year we sprayed them early in the spring with arsenate of lead.

That season they yielded more abundantly and the currants were nearly half again as large as they had been the previous year. Needless to say we relished them for table use even more than we had the first season. Besides eating them as a fruit we put up jelly and dined off currant pies and currant sherbet. The latter, to our notion, is one of the most

and easier to handle than any other small fruit.

Since out interest in currants has become active a friend who operates a fruit farm in western New York has written me that he received \$700 last year for the fruit from an acre of currants. So, it would seem, that growing currants for the market is no less advisable than growing them for home consumption.—*F. L. Clark, Iowa.*

Food Conservation Our Duty

On another page of this issue Mr. Carl Vrooman, Ass't. Secretary of Agriculture, appeals directly to THE GARDEN MAGAZINE readers to use their every energy at this time toward the conservation of the crops now growing in the gardens of the people.

It is conceded that the Garden Neighbors rallied nobly to the earlier appeals to increase food crop production this year. THE GARDEN MAGAZINE readers responded not alone in working their own gardens to best efficiency, but also in stimulating others and in assuming their proper burden of responsibility in organized local efforts.

But there remains the problem of cashing-in. The crops have been grown—they must be conserved. Methods of distribution must be devised so as to reduce to the minimum any waste of product. Herein lies the opportunity for every Neighbor.

And, further, write at once to Mr. Herbert Hoover, Food Administration, Washington, D. C., and enroll as an active member in the "United States Food Administration" and so obligate yourself to take part in authorized neighborhood movements.

delicious of the frozen desserts. The bushes were in bearing fully five weeks. A feature which surprised us was the length of time the bunches held together and the fruit remained in good condition after apparently being dead ripe. There is almost no waste for this reason as it is seldom necessary to pick more any day than is needed for immediate use. Another thing, we decided that currants are easier to pick

Who Succeeds with Heather?—I note on page 174 of the April number what is said of the heather. I planted it here in two spots, high and low, and it browns in winter and dies back. I wrote to the Biltmore Nursery, from whom I obtained the plants, and was told that it thrived there, and only needed sun and air. My location gives both, exposure West—good soil well drained. Near by I have *Biota nana* and *Retinospora obtusa* which thrive. Any advice you can give me will be appreciated.

In reference to broad-leaved evergreens it seems that *Ilex glabra* and *crenata* are of very slow growth here. *Evonymus japonicus* does well in northern exposure, same for *Rhododendrons* and *Mahonia*.—*Jos. L. Wood, Va.*

[Heather is essentially at home in northern regions or what amounts to the same thing, high elevations in more southerly places. It likes cool, light, well-drained soils with plenty of water, too. Can any Neighbors help our friend?—*Ed.*]

Spanish and German Iris From Seed.—In THE GARDEN MAGAZINE, for June, Miss Sturtevant, speaking of Iris from seed says: "They do not ordinarily produce seeds unless crossed by hand." I have several seed pods on mine now (varieties like *Madame Chereau*, *Queen of May*, etc.) which I will save and try her plan. She may mean that the variety does not change unless fertilized by hand, however, I shall watch mine with interest. [It could hardly be expected that varieties would come true from seed in any case, and more especially since the pollination must have been accomplished by some outside agency.—*Ed.*]

I have a wonderful bed of Spanish Iris, next to a Pansy bed. Last fall I noticed some "wiry looking things" coming up among the Pansies. I first thought they were a good crop of wild onions and was about to uproot them when, on comparing them with the young growth of Spanish Iris, I decided they

were seedlings. I left them, they have just bloomed and are all like the dark blue Iris in adjoining bed. I don't see how they have come there unless the seeds were blown by the wind. I have often noticed the seed pods, but never thought of saving the seed. [Iris xiphium is very variable in color, but is perhaps normally blue-purple.—Ed.] I have no trouble in keeping a healthy lot of dark blue Spanish Iris, though many complain of its being short lived. I have several other colors which disappear after a year or two, except one clump, a bright yellow, that has multiplied in three years.

There is a well defined variety or sub-species of Spanish Iris that has yellow flowers.—Ed.] They are great favorites of mine and I would like to be as successful with the other colors as with the blue. Could there be a difference in the variety? English Iris will last several years but finally disappears. I have so much trouble with moles, I often wonder if they have anything to do with the disappearance of the Iris.

I plant Asters in between Spanish Iris after its season is over, and so far it has done no harm. The Asters last such a short time, they are out of the way by the time the Iris makes its fall growth. Next to the bed of Iris are Shirley Poppies, the rich blue of Iris blooming at the same time as the Poppies makes this a bright spot in my garden, perhaps too bright for those who care only for pink, blues, and lavenders. Behind the Poppies I have a large clump of blue Larkspurs, so after the Iris has gone I still have my combination of blue and red; and with white Sweet Williams in the foreground, I have a "patriotic corner" and I thoroughly enjoy "showing my colors."—Bland U. Tomlinson, Tennessee.

We Love Our Cottontails and prefer to protect all young trees and shrubs, rather than kill the rabbits. Six inch collars made of several thicknesses of newspaper, tied firmly to the small trunks of the trees, and the earth then "hilled" up to cover the bottom of these collars, have proved successful in keeping my small trees quite safe from girdling.—L. M., Ohio.

Magnolia Salicifolia.—The Willow-leaved Magnolia flowered in the parks here for the first time this spring. The flowers were partly open on April 28th and it was in full bloom on May 10th. The season was fully two weeks late and in ordinary conditions it would probably be in full bloom about April 25th. It blooms at the same time as Hall's (Magnolia stellata). The flowers are on short stalks not more than half an inch in length. The six petals are white to cream white, and the sepals greenish white. The flowers before expanding are tubular in outline, and

when fully expanded are from four to four and a half inches across. The flowers are not as showy as the blossoms of the Chinese hybrid Magnolias, but as this species comes into bloom earlier it is therefore of much interest.

The leaves are ovate-lanceolate in outline, acuminate at the apex, and wedge-shaped at the base, yellow-green above, pale and smooth beneath, and four to five inches long on young shoots, and pungently fragrant when bruised. The branching habit is distinctly upright,



Flowers of the new Japanese Willow-leaved Magnolia (*M. salicifolia*) photographed at Rochester N. Y. Normally it blooms with Hall's Magnolia and is welcome because of its large bloom

and it is quite distinctive in this from any other Magnolia, making an oblong compact head. The young branches are olive green, and the trunk and old stems are covered with smooth green bark. *Magnolia salicifolia* is a native of Japan, and is a most interesting and valuable addition to our parks and gardens. The individual that flowered with us is eight feet high.—John Dunbar, Rochester, N. Y.

"All to the Good."—It seems to be the fashion just now to express one's opinion of the Magazine so may I lay my little tribute at your feet? I find an immense deal of information in the articles by "Professionals" that appear from time to time, and, unlike Mr. Chamberlain of New York, I think the Magazine might die if it did not have them—to me they are the

cream of the contents; but I also enjoy the little bits by amateurs. In fact the Magazine is so good that I cannot see how any one can have anything but unstinted praise for it.—M. E. Blacklock, Ontario, Can.

[Nevertheless we hope to improve constantly with the help and advice of our readers.—Ed.]

Out of Season Transplanting.—I think that C. L. Meller did not go into detail enough in his article on Transplanting out of Season. This is the way I proceed: Late last spring I found that two small beds of Canterbury Bells were in great need of thinning out. The plants were already a foot or more high and ought not to be sacrificed, either by pulling out or allowing to crowd one another. So I found two round-pointed farm shovels, thrust one deep under a plant and the other to a little more than the same depth into the place where the plant was to go. Then I traded the shovelfuls. The process was repeated at a very rapid rate. Not a plant suffered. One or two drooped a little, but watering quickly restored them. When I was through I had still two beds of undisturbed plants and had gained a long row across a fifty-foot garden. At this writing, July 3, all are bursting into scores of flowers, the transplanted ones fully as good as the others.—John W. Chamberlain.

Flowers Every Month.—If there is any one thing that Cleveland cannot boast of it surely is her climate in the winter. It is raw cold, windy, and sometimes for weeks at a time we hardly see the sun. But notwithstanding all this, I have for many years been able to pick flowers from my garden every month in the year. I have to confess that this January was so cold that I found no flowers, or rather that no one else did—for I was not in the garden during that month. My last garden flowers were the little Pompon Chrysanthemums, and "Johnny-jump-ups" picked

December eighth, and the Paper White Narcissus had been in bloom in the house quite three weeks before. This is the first time that I have ever made my spring flowering bulbs, and the fall flowers in the garden lap by. While the Paper Whites were still going in January, the Freesias began. They lasted a full month, and then with them and always lapping over a little, came the Roman Hyacinths, the real Daffodils, the Dutch Hyacinths, blue Scillas. On the twentieth of February we found our first Snowdrops, and since then there have always been a few flowers in the garden. For almost a month the Snowdrops had it to themselves, but then came Crocuses and blue Scillas as well.

About the middle of January we are likely

to have a few mild days, and it is then that I look to find on the north side of the house a few brave Snowdrops which somehow give me a thrill of joy that the later flowers can hardly bring. So you see that within and without I manage to have flowers in my garden every month in the year. When I have been forehanded enough to have Pansy plants in the coldframes, I have often picked a Pansy on each of those barren winter months about which Louise Beebe Wilder has written with so much feeling. At the present writing (March 23), the *Arabis alpina* which is planted with the *Scilla sibirica* is well budded, and soon there will be a wonderful bed of clear blue and white.

I had a curious experience with my *Arabis* two years ago. According to all the authorities, late summer or early fall is the time to separate these plants, to increase their number. Early in the spring I set an old darky to uncovering the bed, cautioning him to do it only with his hands, explaining that every little circle of green leaves contained the buds and it must not be broken; the greatest care must be used.

The moment my back was turned he clawed over the bed with an iron rake, and as a result some seventy-five heads that had braved the winter's cold were ruthlessly snapped off. I was disconsolate, almost to tears, but moved by what I know not, I knelt down and one by one pressed each rootless little stem with its whorl of leaves in the ground, not really thinking they could live, but just because I was sorry for them to be cut off just before their blooming time. Imagine my surprise some two or three weeks later to find practically every one of them had taken root and they blossomed and have greatly added to the size of my bed.—*Nellie D. Merrill, Ohio.*

When a Teaspoon Solves Difficulties.—When the weather at last permits the transplanting of early grown seedlings to their outdoor situation, there is apt to be a large loss from the handling, as well as a set-back to those that survive. The seedlings are often quite close together in the box, and to dig out one without bruising or breaking some of its neighbors is difficult or impossible; and the plant which is being moved is, also, often injured by the old earth falling away from its roots, this making the shock of transplantation very severe. The use of a flat blade, like that of a knife, generally loosens the earth about the root: a small trowel is not much better, besides almost certainly crushing nearby plants by its broad, long blade. If a kitchen teaspoon be used for these tiny seedlings, it will be found very easy indeed to scoop out each plant with the earth around its root not even loosened, and to place it in a hole already scooped in the outdoor flower bed to receive it, where it will grow as if nothing had happened to it. The fact that the bowl of the spoon is curved in two directions instead of in only one, as the trowel is, makes it easy to get well under the plant, and helps to hold the ball of earth around the roots together. The short bowl and narrow handle of the spoon makes it practicable to avoid the surrounding plants.

With a teaspoon a first transplanting of seedlings sown broadcast can be nicely done in the house before the spring shift to outdoors.

With many larger plants, transplanting is equally facilitated by the substitution of a larger kitchen spoon for the usual straight-backed trowel. For instance, poppies, which are said to be almost non-transplantable, have been moved by this means, and very few plants lost.—*W. J. Whiting, Conn.*

Marsh Marigold as a House Plant.—Many of our native plants bloom well in pots in the window or on the piazza in summer, or in the window box in early spring, but for a goodly show of blossoms and foliage from little care I suggest the Marsh Marigold (*Caltha palustris*). The treatment is simplicity itself. One or more roots may be lifted from the brook-bed as soon as enough growth has been made in early March to show their location, and placed in any kind of a dish with a little of the brook mud or garden soil, and plenty of water. I prefer about five roots in a six-inch pot, to get a good clump, and the mud in the pot is covered with Marsh Forget-me-not (*Myosotis palustris*) which will give an undergrowth of fresh green shoots, and flowers after the Marsh Marigold has dropped its blossoms.

The pot is set in a deep dish holding at least a quart of water, and set in any window—it is not necessary to have any sun. The room need not even be heated, and it does the plant no harm to freeze, the dish is more liable to be injured. Within three days the big round leaves will push out, the buds show in two weeks' time, and the waxy yellow blossoms on stems a foot tall are fully expanded inside of three weeks from the time you bring the plant within doors. If the plant is kept in a cool room the blossoms are effective for three weeks, so large and shining that friends think it must be some rare plant from the tropics, and not our friend of the swamps a month later.

When the flowers have fallen and the foliage gets limp slip the plant out of the pot and into the brook again or in the shady part of the vegetable garden, where it may be forgotten until the first thaw of the next spring, when the roots may be potted and brought into the family again. I imagine that the double-flowered form would give even brighter and more enduring blossoms.—*S. F. H., Lexington, Mass.*

THE MONTH'S REMINDER

THIS YEAR'S LAST FOOD PLANTINGS—BUILDING FERTILITY FOR NEXT—SETTING OUT EVERGREENS

DON'T fool yourself; for there's work to be done! Anybody knows that one of these piping afternoons, when the thermometer is threatening to run over at the top, and sidewalk and paths are so hot that your bare-footed boy has to walk on the grass, it is much more comfortable in the couch hammock, with the last volume of Kipling or the new issue of the *World's Work*, than it is out in the garden shoving a wheel hoe or destroying weeds. But—think of the boys in the trenches—and also of the price you paid for potatoes last winter! And did you ever notice that the man who has been out playing golf or tennis all afternoon has a good deal less complaint to make about the terrific humidity than the one who has been hugging the shady side of the veranda, and imbibing iced drinks? There's a considerable stretch every afternoon, say from four o'clock till dark, when it's fairly comfortable in the garden—next year we will have "daylight saving" in force. And as to other objections:

(1) If your garden is clean, half an hour's work a day with the wheel hoe or slide hoe will keep it so, while if you let it go it will take

hours of the hardest kind of work to get it back into shape, if you find it possible to do so at all.

(2) If crops have "gone by," it is the worst kind of gardening to let them remain, inviting weeds to mature and seed themselves, and using up plant-food and moisture that should be utilized for a succession crop, or for a cover crop for winter to be spaded under next spring, *supplying your hungry garden with humus and stored up plant food for big crops next season.*

(3) As to the argument that you have to leave the big weeds, because they cannot be pulled out without taking other things along with them—don't pull them out! But don't leave them to work havoc where they are. Sharpen up your knife, or if there are many of them your lawn edger, and *cut them out.* Cut through the roots, just below the ground.

Last Call for Planting!

THIS is about the last call for planting food crops to be used this year. A number of things can be put in yet, if you plan at once, and take pains to do everything you can to assure good germination. These include: beans, beets, carrots, Chinese cabbage, corn

salad, cress, lettuce, peas, radish, sorrel, spinach, swiss chard and turnips. In making these late sowings you should of course use *early* varieties which will mature in the shortest time. Most of the foregoing require about eight weeks to be big enough for use, but the root crops will continue growing until hard freezing weather. *If you take full advantage of the opportunity* that is likely to occur, and make this planting *immediately* after a good rain, it will be possible to have most of the vegetables up in three or four days after sowing. *But don't wait indefinitely for a rain;* and have your ground spaded and ready to absorb every drop that falls, if you are going to wait at all. If the dry weather doesn't let up, open up trenches before planting and flood them with water; then fill in a little soil on top of the mud, and plant on this, pressing the seed down firmly. Soaking the seed a day or so before planting will also help to make certain of good germination in dry weather.

Start Plants for Later Use Under Glass

WHEN your planting of outside crops is attended to, don't forget that you will be needing good strong plants with which to plant

your frames and the benches in greenhouses for fall and winter use. A large number of plants for this purpose may be started in a very small space. If you haven't an empty frame, and your garden is not accessible to water, take a few square feet in one of the flower beds. If the soil is very dry, first of all water it thoroughly two or three times in succession; then fork it up and make it smooth, adding humus or sifted leaf mould if it is not already loose and friable. Mark off shallow furrows six inches to a foot apart, and after sowing the seeds, and *marking each row carefully*, cover the whole with a shading of cheesecloth or some similar light material. The little seedlings should be thinned out or transplanted as soon as they begin to crowd.

The New Strawberry Bed

KEEP in mind that the size of your berry crop next June will depend upon the growth made by the plants before freezing weather this fall. If you planted last April, or if you are planning to set out potted plants this month, everything possible should be done to get the crowns as well developed as possible before that time. Continuous cultivation, and an extra side dressing of nitrate of soda and wood ashes or a good garden fertilizer should be on the programme of their care for this month, if the bed is already planted. If you are going to use the matted row system, see to it that the strongest runners are rooted *where you want them*, and the secondary and surplus runners cut off. Very few gardeners seem to fully realize how certainly crowded rows are to mean small berries.

If you are setting new plants now, study carefully the article on page 20. It is highly important to provide a liberal amount of nitrogen in available form. Sheep manure, chicken manure or tankage, mixed with fine ground bone, will accomplish this. Commercial mixed fertilizers need handling with care as there is danger of injuring the roots with them. A sprinkling of wood ashes, either with the materials suggested above, which should, of course, be thoroughly mixed with the soil before the plants are set—or applied along the rows two or three weeks later, will also be very helpful.

Now for the Evergreens!

NOW is the time for evergreens, and you have the place—unless your grounds are the exception to the general rule! Have you been waiting for years, and envying your friends with attractive groupings or plantings of these beautiful trees? You may have been excusing yourself with the thought that you could not afford them; the real reason however has been that you never *acted on your impulse and sent in an order* for a few! Don't let the time slip by and the opportunity be gone for another year! Send in your order this week and be ready to plant just when they should go in.

Thin Now for Fat Fruits Later

MANY home gardeners, who take very good care of their trees and spray them regularly, wonder why they cannot grow such fine specimens of fruit as they are able to buy. One of the chief reasons is that they cannot bring themselves to the point of picking off numbers of good looking peaches or apples or plums before they get ripe, in order that those remaining may be better. It is about as hard to get them to do this, as it is to get a beginner at Rose gardening to cut back her cherished bushes almost to the ground the first spring after she has set them out—

she may believe it ought to be done, "but simply hasn't the heart to do it!" Well, you can take your choice; over-crowded trees and poor fruit, or properly thinned trees and excellent fruit—and there will be as *much* (bulk) of the latter as of the former. Twenty to fifty per cent. of the fruits on overburdened trees should be removed; the sooner the better when the natural "drops" are off. It is much more likely that not enough, rather than too much, will be taken.

Bag Your Grapes!

HAVE you ever had your grapes set so that every bunch was as full as it could possibly be; and grow as nicely as you could possibly ask, and then, just before they were ready to eat, begin to "go bad," until, by the time they were ripe, there was hardly one you could eat? Have you. Well, don't have that experience again this year. It's up to you! The surest and simplest way of protecting the bunches on a few vines for home use is to put a paper bag over each bunch. Special bags,

DO THIS MONTH

Without delay, make *last plantings* of succession crops.
Start lettuce, cauliflower, pansies, stocks, and other vegetables and flowers for fall and winter under glass.
Set out new strawberry beds.
Plant evergreens.
Plant *Madonna Lilies* as soon as received.
Transplant and divide *Irises*, *Oriental Poppy*, and many other perennials.
Thin out fruits that have set thickly.
Sow alfalfa.
Sow cover crops wherever possible.
Keep *July planted* crops growing fast.
Bag your grapes to protect from rot.
Order materials for new hotbeds or cold frames.
Order bulbs of all kinds for fall planting.
Prepare beds and borders for fall planting.
Get ready for exhibits at vegetable and flower shows.
Build a greenhouse for use this fall to increase your food crop efficiency. This is important.
Keep the garden clean!

made for the purpose with wire fasteners, may be bought at about half-a-cent apiece. Ordinary paper bags will do; but the others are more convenient.

Good Gardens in Spite of the War!

IT IS always well to sow cover crops to save plant food, and to furnish humus for the garden; but this season, in view of the fact that there will be the greatest scarcity of fertilizing materials next spring that we have ever had, makes it ten times as important for every gardener to do all he can to protect himself in this way. Have rye and vetch or crimson clover on hand with which to seed down every square foot of your garden that would otherwise be bare through late fall and winter. Crimson clover can be used as far north as New York; farther north it is safer to sow the vetch, though early sowing, with another crop, will help to carry it through the winter safely. It is not necessary to wait until your ground is bare. Rake up all available surfaces, between rows of growing crops, among tomatoes and pole beans, in the sweet corn, etc., etc., and sow the mixture thickly, so as to have a green mat by cold weather; the work of picking and removing the crops will not cause as much loss as waiting until two or three weeks later to put the cover crop in. Rye can be sown on any bare ground up to time of frost or slightly later.

Have You Any Use for Hay?

JUST about the middle of this month is the best time to sow alfalfa. If you have a cow or a horse—or even chickens—on the

place for which you have to provide feed, why not try a small sowing of this wonderfully productive plant this fall. If you have wood ashes, and your soil does not have surface water on it during the winter months, you should be able to succeed in making it grow; once established it will last longer than any similar crop you could put in, and will give you three or four cuttings for green food or for hay, where you are getting one or two from grass.

Are Your Irises Petering Out?

IRISES, like most of the other hardy perennials, after a few years become overcrowded, and use up the amounts of plant food in the soil in which they are growing, so that the flowers gradually become smaller, and the plants weaker. To offset this, the plants should be lifted and separated every few years (about every three years in the case of the Irises) so as to continue to have first class flowers. Lift the old clumps carefully, and keep them shaded from sun and wind with an old wet bag. Then fork up the soil and work in well rotted manure and bone dust, if it is desired to replant in the same situation. But do not put the whole clump back. Separate it into sections containing several of the thick fleshy roots, with a bulb or leaf crown attached, in the case of the German Iris; or cut into sections several inches square, in the case of the Japanese class. The extra divisions may be used for planting elsewhere, or to present to some flower-loving friend. The German Iris should be planted quite shallow—about as you find it growing when you go to take it up, with some of the roots almost on a level with the surface.

Speed Up the Late Planted Crops

THE success of both the seeds and the plants put in last month, winter cabbage, cauliflower, brussels sprouts, late sweet corn, root crops for storing, etc., will be determined by the growth they make this month. In addition to keeping them frequently cultivated and free from weeds, a little extra encouragement in the way of a side dressing with nitrate of soda or some other highly nitrogenous material, such as sheep manure or tankage, will help them to become well established, and lay the foundation for big results in September. Celery especially should be kept growing rapidly. It requires an abundance of water, and even if you can't water the whole garden give the celery plants enough to keep them from getting very thirsty, if you want to make sure of your supply of thick crisp stalks for Thanksgiving.

Don't Fall Down on Your Orders!

GET in your fall orders on time. Next month is planting time, and you should be just as busy now in planning what you are going to put in, and in getting off your orders for it, as you are in February or March in getting ready for your spring planting. First of all there are the fall bulbs—(it seems now that the Dutch stocks will arrive in due season). Are you familiar with the finest of the Darwin and Breder Tulips, such as Dream, Remembrance, and Rev. H. Ewbank? If not, give yourself a surprise next spring! And the hardy Lilies—one of the most neglected, in proportion to their real value and permanency, of all the classes of hardy flowers. And if you've been putting off, spring after spring, the planting of those ornamental shrubs you decided years ago to get, now's your chance!

THE PATRIOTIC GARDEN

CROP CONSERVATION & DISTRIBUTION

He also Fights who helps a Fighter Fight (H. Hoover)

AT LEAST SAVE SOME OF YOUR WINTER SUPPLY

MAKE YOUR GROUND WORK FOR THE FAMILY & NATION

Authorized Statement of the Assistant Secretary of Agriculture

THE home garden campaign of 1917 ought to go down in history as one of the most remarkable responses ever made by the American people to a request from their Government—the request to help win the War by growing food. But the mere growing of food is only part of the battle. There is no use planting foodstuffs if the planting is not followed up by intelligent cultivation and harvesting. There is no use harvesting food unless there is efficient handling and preserving of it. And there is no use expending energy on any of these things, unless there is efficient marketing.

I think that by now the American people, broadly speaking, understand pretty well how to plant gardens and how to cultivate them. They are beginning to learn how to can and dry foods for winter use, but they still have a lot to learn along this line. If they are to conserve the crops of this summer, they must dry and can a thousand times more than hitherto—and do it more effectively.

The marketing problem is the most difficult single problem of them all. There is no easy solution of it. The one suggestion which I would like to bring to the mind of every home

gardener at this time is this—that the elimination of the unnecessary or illegitimate middlemen is as vital to the winning of the War as is the planting of food; that there may be plenty of food in the country and yet the prices may be so high as to be prohibitive and productive of the most acute suffering; that there is the greatest need for practical coöperation on the part of producer and consumer to the end that food produced on the farm and garden or manufactured in the factory may reach the consumer by the most direct route. The neighborhood community store run on a strictly coöperative basis and for service alone is a long step toward a solution of these difficulties. We have such a neighborhood store in Washington, D. C., and its demonstrated success is a splendid sign of the times.

I hope to see community stores springing up everywhere throughout the United States, so that the produce of the farm and of the garden, the food of the factory and the mill may be distributed to the ultimate consumer for nearly the cost of distribution—and no unnecessary waste or profit in the process.

CARL VROOMAN.

Eleventh Hour Opportunity

NOW is practically the last chance for those who want to “do their bit” in boosting this year’s food supply. And everything is in the gardener’s favor—the soil is warm, mellow, full of fertility; occasional showers prevail; seeds sprout with a “pep”; plants grow with an energy to mature before Jack Frost arrives.

The only point to guard when making the August garden is to be sure that there is sufficient moisture in the ground for prompt germination of seeds, or to sustain the roots of transplants. Therefore, as a matter of insurance, water the drills or holes thoroughly, before putting seeds or plants into the ground.

Grow Your Own Fertility for Next Year

THE time to sow cover crops (which will put humus into the soil for next spring) is when the free-growing crops now standing and which will die with the first fall frost, are too big to be cultivated any longer. If the soil is very lacking in vegetable matter it will be a good plan to sow a mixture of several species of cover crop, so as to get the most possible in a given time. A good combination for the vegetable garden is buckwheat, rye, and crimson clover. The first will start even in hot weather but will be killed by early frost. In the meantime the others will have grown enough to catch the falling leaves of the buckwheat. The clover may die during the winter but the rye will prevent loss of the leaves and will live. Indeed, here is its chief

disadvantage: it may be allowed to live too long. It must be dug or plowed under when only a few inches high. In sowing, just scatter the seed broadcast among the plants immediately after the last cultivation. It

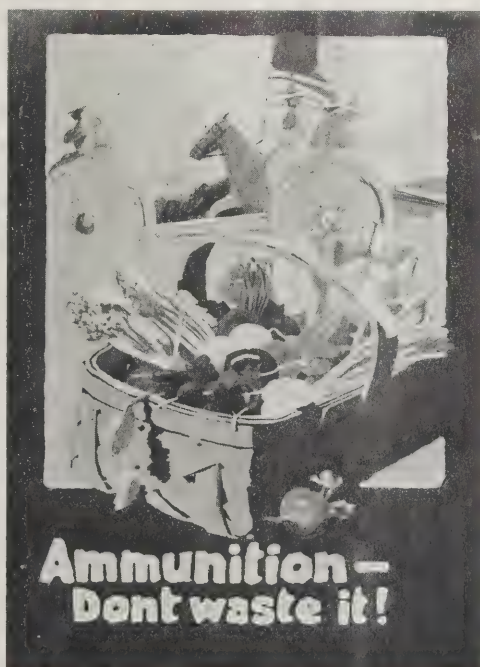
will not grow enough to injure the regular crops before harvest. Then the stems of these crops should be hauled to the compost pile and burned.

Thin the Ranks

ALL root crops sown this month must be given every chance to grow easily. Thinning of the row is the most effective factor in helping the final result. No other single factor will more decidedly retard development than letting seedlings stand crowded—they then jostle and push each other instead of attending to their own business of growing. Thin early; giving three to four inches apart for the plants left. This distance is standard for all root crops sown in August. Early thinning means early maturing.

Prepare Now for Bigger Crops in 1918

AS SOON as space becomes available in different parts of the garden, sow quick “cover crops” such as rye or vetch or rape. They’ll keep down the weeds now, and—dug under in either late fall or spring—will enrich the soil with humus, that one dominant factor for fertility counting before all else that can be put into the soil. Make it a point to boost the 1918 berry crop by growing some berries of your own. Throughout August and September strawberry plants of various kinds may be set out and they will bear crops next summer. There should be room for currants, gooseberries and a strawberry bed in every kitchen garden.



Timely and effective poster issued by the office of Food Administration. It tells the story convincingly

THE number of things that can still grow from seed to edible size is really surprising. Watch just two points: Sow the seeds promptly and *sow varieties adapted to the season*. This means quick-maturing types, and since the same weather conditions prevail during early fall as during early spring, in most cases, the *extra early spring sorts* will again serve their purpose.

Two kinds of gardens you can still have: (1) from seeds and (2) from plants. If you can, persuade your neighbors to let you have beet, lettuce, kohlrabi, or any other plants which they are now "thinning" from July planting. Most seed stores are prepared to supply plants of late celery and cabbage during the early part of the month. But if a garden from plants is out of the question, by all means start one with seeds and here is what you can grow:

Planting Orders for the Month

Beans. Where the first average frost does not occur until the last week in September, Bountiful or either of the Yellow Six Weeks Beans will produce pods from seeds sown up to August 10th. With September 21st as the frost date, depend on Hopkins' Strain of Round Podded Red Valentine to furnish pods in 48 to 52 days. But you *must* sow not later than August 5th (latitude of New York) or arrange to protect the plants. By placing rows eighteen inches apart, quite a space may be enclosed with bags or burlap. Thus protected, the approach of heavy frosts need not menace the late started beans.

Beets. Plant more rows at once. Not only do the young, "thinned out" seedlings furnish delicious greens, but varieties like Faust's Early Crimson (which is a white beet) and special strains of Crosby's Egyptian will form roots two to two and one-half inches in diameter by the end of September from seeds

FOOD CROPS That You Can Sow Now

sown during the first week of this month. Be sure to press the seeds firmly into contact with the soil by walking over the rows. Though beets are really quite hardy and stand considerable frost, pull them for winter storage, before the centre leaves of the tops freeze, to ensure keeping quality.

Carrots. Both Chantenay and Oxheart will grow to good size if seeds are sown promptly early in the month and the seedlings are "thinned out" promptly. No other single factor will retard longer development than crowding in the row.

Other "root crops." Plant kohlrabi, radishes, and turnips. Early White or Purple Vienna kohlrabi are ready for use or storing in sixty days from date of sowing seeds. They stand considerable frost and may be left outdoors until the middle of October.

Radishes. The early sorts are again the order of the day. Scarlet Globe, Icicle, and Rapid Red will develop roots fit for use in 25 to 35 days and will retain their crispness for some time. Make no attempt to store these radishes since they are not of sufficiently solid texture to keep well. But by making repeated sowings of 15-foot rows during the first two weeks of the month, you may enjoy these delicacies up to hard frosts.

Turnips are one of the most profitable crops to sow now. Either of the Milan varieties or Snowball will reach edible size in 45 days. But for winter storage Purple-top Strap-leaf is better, since it is firmer. However, since it requires at least 65 days to reach good size, it must be sown very early in the month. It will grow right up to severe cold weather,

when it should be pulled and stored along with carrots, beets, and kohlrabi.

Kale and spinach are two cold-loving plants for "greens" that will thrive in the garden until after snow flies. Sow seeds in rows, which makes it ever so much easier to cultivate the crop, than the old-fashioned method of "broadcasting" the seeds. Dwarf German or Scotch Kale will develop superb plants by the end of October from seeds sown up to August 15th.

Spinach. Any kind, excepting New Zealand, will reach full size from seeds sown any time this month.

Peas. You may hope to gather luscious peas if you start with either Pedigree Extra Early, Market Surprise, or any other first early. Sown in double rows, four inches apart, with eighteen inches between the rows, Pedigree Extra Early needs no support, though Market Surprise will be better off if provided with brush or strings. The latter matured in 53 days this spring.

Lettuce thrives to perfection during the cool months of early fall. Either Black Seeded Tennisball, Wayahead, or Naumburger (among the butterheads) will form fine heads by the end of September from seeds sown early; among the crispheads, Crisp-as-Ice beats all for hardness. We have seen this thrive outdoors, under a covering of dry leaves, right up to Thanksgiving. The thing of paramount importance in connection with lettuce is promptly thinning the seedlings to stand four inches apart when three to four inches tall and of taking out every other plant as soon as they begin to crowd in the row.

Directions as to time given in these columns apply generally to the latitude of New York as a standard. Except where specifically otherwise mentioned allow a difference of about a week earlier or later for each hundred miles south or north, as the case may be.

YOU may expect a second crop of SLUGS ON THE PEAR foliage. If one appeared in your neighborhood during June, it will be due about the first week in August. We mean the ones that were green until full grown, then turned yellow when they shed their last skins before going into the ground to pupate. The flies from the first brood emerge in about two weeks, lay eggs on the leaf and die. The slugs of the second brood hatch in about two weeks and, if allowed, reach maturity in about four or five weeks. If not convenient to use arsenate of lead (which possibly you can't buy by the time this appears)—an ounce to two gallons of water—lime dust, pyrethrum powder or even road dust will make them uncomfortable enough to drop to the ground where if expectant chickens are at hand they will help reduce the H. C. L.

★ WORMY QUINCES are made so by the codling moth larva which also makes wormy apples. Spray with lime-sulphur wash (an ounce to two gallons of water) when the fruit is half grown. Of course, the spring spraying is more important. But it's now too late for that for this year!

★ THOSE little FLUTE-LIKE HOLES set close together on grape, raspberry and other canes that you perhaps saw late last summer, or until this spring, were made by the beautiful pale green or snow tree cricket which makes so much noise in shrubbery on warm summer evenings. Neither the adults nor the larvae

ENEMY ASSAULTS You Must Repulse

are troublesome because they eat plant lice and other insects. Their egg-laying habit weakens and injures the canes somewhat. If seriously abundant, cut off and burn the canes during winter or early spring.

★ IF THERE are only a few CABBAGE WORMS—the green velvety fellows—on your cabbage, cauliflower, and related plants, you needn't worry because their parasites will relieve you of their attentions. But if they are very numerous treat them to paris green (1 oz.) and whale oil soap (4 oz.), in water (6 gal.) any time up to the formation of the head. Hellebore one part by measure to three parts of flour, or lime dust is good to shake over the plants while still wet with dew. Some people use slug shot.

★ CABBAGE aphids or lice increase generation after generation all summer and fall. Better see if any of the little fellows are on the plants (cauliflower, brussels sprouts, etc.) this month as there will be many times more in a few weeks unless attended to now. "Black leaf 40" or other nicotine preparation such as aphine according to directions on the package but with two ounces of whale oil soap added to each three or four gallons of water may be used to good effect.

★ MELONS AND CUCUMBERS are very shallow rooted plants. They send their roots long distances laterally only a few inches below the surface and fully as far out from the "hill" as the vines extend. With this fact in mind the method of handling them is obvious: use a scuffle hoe or a garden rake frequently but no deeper than the surface half inch of soil. Do this every week from the time the vines begin to "run" until they cover the ground, all the time keeping just out of touch with the vines themselves. The less the vines are touched or moved, the better, as they are then less likely to be injured or to become victims of disease and insects. Other things being equal this method will produce finer quality fruit than any other method. It is distinctly the home or amateur practise which the commercial melon grower cannot approach, much less equal.

★ BORERS IN APPLE TREES are of two principal kinds: the "flat-headed" which may be found in any part of the trunk and the main branches, which reaches maturity in one year and which feeds mainly just beneath the bark; and the "round-headed" which is usually found mostly near or just below the surface of the ground, lives three years, during the second in deep burrows though at first feeding in the sapwood and the inner bark, and lastly pupating just beneath the bark. Both species are very destructive especially to trees not kept clean around their trunks and to failing trees. Clean cultivation is a partial

and fairly satisfactory preventive, but cutting the worms out with a sharp knife or a chisel is a sure cure though in serious infestations a "kill or cure" remedy so far as the tree is concerned. After cutting, the wounds should be swabbed with concentrated lime-sulphur wash or with an alkaline wash made of soap, water, and caustic potash made into a creamy liquid. The trunks should be swabbed as far up as the lowest limbs or farther.

★ BLACKBERRY AND RASPBERRY plants die mysteriously, you say. No disease to be seen. Perhaps it's the raspberry root-borer. Notice whether the lower parts of the stems and the roots are bored out and if the new

shoots at the crown are girdled. A few plants will tell the story. Nothing to be done but to dig and burn the plants at once.

★ BORERS IN THE QUINCE BUSHES! Most likely the same as in the apple trunks and limbs. The same remedy will apply—dig them out and paint with concentrated lime sulphur wash or caustic potash and soap in a creamy solution.

★ WHERE radishes, mustard, cress, cabbage or other plants of the mustard family have been growing early in the season or last season use carrots, beets, celery, or some other crop of a different plant family. The mustard family is sub-

ject to a disease called "club root," which lives in the soil and often does serious damage when plants of the family follow each other closely.

★ If you plan to save seeds of beans and peas for next year's planting, be sure to fumigate the shelled seed with carbon bisulphide to kill any weevils that may be present. These little beetles live over from year to year in the ripe seed, having developed from eggs laid in the green seed. The best way to fumigate is to place the seed in an air-tight receptacle not quite full, then to pour carbon bisulphide in a saucer placed on top of the seed and then to close the receptacle tight for two or three hours.

Cashing-In the War Gardens F. F. ROCKWELL

ORGANIZATIONS BEGUN TO SPEED UP PRODUCTION MUST NOW BE UTILIZED TO PREVENT WASTE OF THE PRODUCT—THE PROBLEM OF LOCAL OVER-PRODUCTION

EACH passing week seems to indicate more clearly that the war will finally terminate in a gigantic struggle for adequate food supplies; that the eventual issue will be settled by the field and garden. It was with a realization of this possibility that the "war garden" movement was given such an impetus in the early summer. Now the fruits of all the earnest endeavor which that agitation stimulated are begin-

own eyes I would not have found it possible to believe that such a very high percentage would be as well planted and as well cared for as they have been. Unlike most other "waves of popular enthusiasm," this garden movement seems to have had no recession; I believe, simply because it has given the people a chance to do what they really would have liked to do before. The vacant lot campaign and similar enterprises have merely

along finely, and a great deal more is going to be produced than it would have been reasonable to predict at the beginning.

Are We to Fall Down Then?

ALL this, in view of the present world food situation, is very cheering—except to those who from previous experience know what is likely to happen when nature has been generous in giving big crops!



Avoid waste by coöperative distribution Utilize existing organizations like the Garden Clubs, the Boy Scouts, etc

ning to mature, and we find ourselves confronted with the equally important problem of utilizing them to the fullest possible extent.

During the last few weeks, in connection with the work of establishing model demonstration "war gardens" in a number of the largest Eastern cities, I have had occasion to see literally thousands of back yard and vacant lot gardens. If I hadn't seen with my

opened the door of opportunity to those who were waiting to push through! In the majority of cities, the number of plots available for general distribution were "over subscribed" almost as soon as announced. While some of these gardeners will drop out, nevertheless there is every indication that most of them are going to stick. The later plantings, in spite of the bad early season, are coming

Those who do know realize that the percentage of waste, especially in such things as perishable garden vegetables, usually is tremendous. Not infrequently it amounts to fifty or even seventy-five per cent. of individual crops! The small vegetable garden, in which *from twenty to fifty per cent.* of the stuff raised does not go to waste, is the exception to the general rule. To permit

any such waste this year will be nothing short of criminal—and yet that is just what is bound to happen unless steps are taken in each individual community to do something beforehand to prevent it. *No Government Commission can do this work for us—any more than it could have done the work of getting all these little gardens started.* The Department of Agriculture is doing all it can in the way of educating people to utilize the surplus products of their gardens, just as it did in the spring in telling people how to plant.

Now, just as the work of planting had to be taken up and pushed as an emergency necessity by all kinds of local organizations and clubs, so the task of utilizing to the full the things that have been grown must be directed and handled in the same way.

Whether or not we are to cash-in at par on what our war gardens have produced, or to suffer a loss that is needless, and in the aggregate for the whole country tremendous, will depend upon the efforts of a few individuals in each community. Every reader of this magazine should immediately appoint himself or herself (and from what I have seen during the last few months, I know that the women are doing a very big half of the emergency garden work!) a committee of one to see to it immediately that the garden club food committee, Woman's Aid Committee, Chamber of Commerce, or whatever organization has had charge of the "food gardens" work in his or her locality, at once give careful consideration to the question of preventing waste.

First Aid to Wasteful Gardeners

THE waste almost universal in small gardens is generally due to the fact that the gardener does not know how to prevent it, or that the general overproduction of some particular vegetable is so great that it will really not pay to attempt to do anything. The latter reason is not likely to hold good this year. It is up to those in each community who *do know better* to attend to it and, through proper organization, see that nothing goes to waste merely because the grower lacks information as to how to conserve it. The efforts of individuals in this direction will be good as far as they go, but they will not go far enough. In the following paragraph there are four definite suggestions, one or more of which



Packages neatly put up will find a ready sale at all times, even during gluts

can be utilized to advantage in every city or town where extra gardens have been planted this year. Before taking up these suggestions in detail, however, emphasis must be laid on the importance of getting this work *started immediately*. Most gardens were planted late this year and will be at the height of their bearing season for the next few weeks. If we have hot, dry weather things will mature

and "go by" very quickly; therefore, every day counts. Immediate action now will save the day in *harvesting*, just as it did last spring in *planting*! Will the people rise to this occasion as they did to that?

In every town or city there should be at least one organization in a position to take up and push one or more of the following plans. But, as is always the case in such matters, *it will take a strong push by some individual to get the organization started.* So either do it yourself or keep after some one who can until something is started somewhere!

An Exchange for Every Group of War Gardens

THE spirit of coöperation and the idea of doing all that can be done to help and encourage the individual in gardening must not stop with the planting.

When there is one garden plot in which the owner has planted more beans than he can possibly use himself at one time, while fifty feet away, in another plot, there are heads of lettuce threatening to go to seed because the person growing them cannot eat them as fast as they mature; and, in a third, perhaps, radishes and turnips will have to be pulled out and thrown away if they are not soon made use of—under these conditions, certainly the common-sense, practical thing at hand is to establish some agency for trade and exchange between the different plot owners.

As to what would be the best way to arrange the details of this exchange will depend upon the conditions to be met in each particular place. Most of the war gardeners do their work in the evenings and on Saturday afternoons. A large table made out of plain inch boards, and supported by rough 2 x 4's on which to display produce for sale, is all the equipment really necessary. Some near-by merchant, however, will probably be only too glad to furnish one of the large advertising umbrellas, such as are used on open market and truck wagons, to afford some protection from rain and sun. It would not be necessary to have this "exchange" open for business more than a few hours a week; say, between five and six Tuesday and Thursday afternoons and from four to six on Saturday. The complications of delivery and a credit system should, of course, be avoided; those bringing the vegetables would state the price at which they were to be sold. In some places, it might be desirable to charge a slight commission, but, as a rule, this would probably not be necessary, as it should be possible to get volunteers to take charge of the exchange table for the few hours a week required. Either a credit slip or a receipt memorandum might be given for any of the vegetables brought in, but they would not be paid for until sold, as any that were not disposed of would be, of course, the grower's loss, just as though they had remained in his garden plot. There should be a simple set of rules covering the requirements as to whether the vegetables need be washed or not, limiting the amount any one could leave and so forth.

The main object of the exchange is to *prevent good vegetables from going to waste*! Whatever method in any particular case seems to be the best for accomplishing this purpose is the one to use.

Enlist the Boy Scouts for the Job!

ANOTHER "channel of distribution" available which could undoubtedly be used to advantage in many cases is through the boy scouts. They could be employed in connection with an exchange like that men-

tioned above, or without it. These boys have already done yeoman service in many ways with the war crisis, and a good part of their training has been that they have been led to realize that there are just as important things for them to do at home as if they were at the front. They have been of help in the production of food supplies, first in working gardens, later in policing others, and here they can be of assistance in the equally im-



As a patriotic gift or presentation basket surely good fresh vegetables will be quite welcome

portant work of distribution and preventing food waste. Their assistance here could consist in ascertaining where available surpluses existed, in taking orders and in delivery. The "organization" needed would be some central point, through which they could find out what vegetables were available and where they could be obtained. If the whole matter were in charge of a scout master, he could make it part of the boys' work for them to get this information for themselves.

A "Dry What You Can and Can What You Can't" Club!

THE lines suggested above are to prevent vegetables from going to waste in the garden. Equally important are the steps to be taken to prevent them from going to waste *in the home*. Your vacant lot garden club or other organization should arrange, first of all, for an educational campaign on the proper ways for saving for winter use all the surplus things that can be grown in the garden, or that can be bought cheaply. If it is possible, get up a meeting on drying or—dehydrating, and on canning of vegetables. If you do not know whom to get, ask your county agent or write to the readers' service of THE GARDEN MAGAZINE. A good lecture with demonstrations on this particular subject will usually "start things," a great deal more quickly than any number of leaflets or circulars. But such a talk, no matter how good or practical it may be, is only a start. This work should be taken up and pushed by a club started for the purpose, or by a committee of your local garden club. This committee should not be restricted to furnishing information or inspiration, it must actually work in wholesale purchasing of supplies. Such an organization could operate a community drying plant.

Work for the Red Cross Also

CANNING work can be carried farther than in helping out individuals. Some medium for exchange in canned garden products as well as for those fresh from the soil may well be established. The local Woman's Exchange would, in most cases, be the logical agency for doing this work. But there is another line of effort which would also be well worth looking into.

In working for the comfort of the men at the front, we are sometimes likely to forget the distress of the women who stay behind. In every Red Cross organization there are probably members who would rather can than sew. Vegetables canned or dried now, and sold at cost next winter where they will be sorely needed,

will be just as much a contribution to the cause as will be the making of bandages for the front. In addition to this, there are the things which will be needed for the Red Cross Hospitals themselves, and which can be had better and cheaper if supplied by the members than if they were bought.

Personal Pointers for Conservation

IN ADDITION to these essential community activities, each person should not forget to do his or her personal "bit" to help in the general campaign for food conservation. If you have a garden, remember to begin using your vegetables early—and also to can or dry them before they get old and tough!

Make your preparations well in advance for drying or de-hydrating all the vegetables

that you can. For information as to methods see last month's GARDEN MAGAZINE. A practical and economical "evaporator" of family size may be had for a few dollars. While small enough for one person, the smallest size is large enough for several persons to use together, as it will be required occasionally. For society or club an outfit of larger size can be bought.

In addition to taking care of your personal requirements, remember that the success of the other suggestions contained in this article depends upon each individual doing his or her part for the common good. If it is necessary for you to contribute, for instance, a couple of hours a week to the Garden Club Vegetable Exchange, in order to make it a success, don't be a slacker!

Water to Increase Garden Efficiency

G. W. HOOD
University of Nebraska

IRRIGATION SYSTEMS THAT ENSURE THE GREATEST YIELD OF CROPS—IMPORTANCE OF APPLYING WATER UNDER CONTROL

WHEN Mr. Edgar McFarland in Tennessee can produce enough vegetables to feed his entire family during the year from a piece of ground 25 x 100 feet by the use of a \$12 irrigation system; and the Seabrook farms in New Jersey can raise consistently 500 or more bushels of potatoes to the acre; and Belden & Sons of Massachusetts can increase their onion yield from 300 to 800 bushels an acre by the aid of irrigation, the rest of us can hardly ignore the thought that water is the limiting factor in the production of crops, not only in the semi-arid but in all regions. The use of water to irrigate growing plants is nothing more or less than a good insurance policy, and it is needed perhaps more this year than ever, because with a possible world's food shortage staring us in the face we

ery is the keynote to success and to-day the grower is better supplied with tools of high quality than ever before in the history of the civilized world.

Yet, with the great development of all the devices for the cultivation of the land, with all the means at our disposal for the increased output of our farms, there still remains the one great limiting factor *water*. The plant does not always *suffer* for lack of water, but its *growth is checked*, and the maximum yield is not received.

The point to which this need for water is felt may or may not be entirely fatal. It may not reach the acute stage of drought in which growth is entirely checked and if continued long enough fatally, but it ranges from the slight need of the plant for water up to the acute need or absolute necessity for it in order for the plant to live.

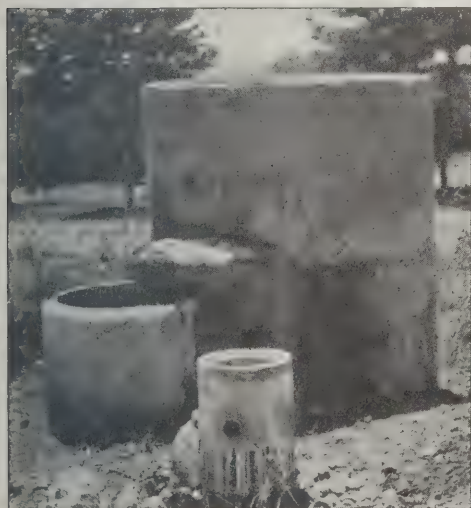
It is generally known that there are certain well-defined regions, of which vast areas are found in many parts of the West, namely in Nebraska, Kansas, Oklahoma, Utah, California, and a few other places where extra water supply is an absolute necessity for the growth of plants. And it is taken as a matter of course that some way of applying it is installed. But seldom do people in the more humid areas suspect that in their own community the yields could be materially increased by the judicious application of water at the proper time. Talk to any grower in the eastern or Middle West where the rainfall varies from 40 to 60 inches of precipitation for the year, and he will say, "we don't need irrigation in our section, we are especially blessed with plenty of natural rainfall. Our crops do well and produce abundantly." While we agree that certain regions are especially blessed with 40 or 50 inches of rainfall in a year, the question remains—does this vast amount of precipitation come at the proper time every year?

It takes but little persuasion to convince the grower in a semi-arid region where the rainfall is 8 to 20 inches a year that water is necessary for the production of a good crop. It is, however, more difficult to convince the grower in a region with 40 inches of rainfall that artificial watering may be necessary.

Though the great problem of soil moisture is in its evolutionary stage and each year sees

different theories and ideas for the conserving of the natural soil moisture, yet it can be said, without a shadow of a doubt, that the application of water to the land is beneficial in every section of the country some of the time and in some section of the country all of the time.

Just what the early history of irrigation is I am unable to say, but we read accounts of the great crops that have been produced in the old countries of Egypt and China where the most primitive methods of applying water to the soil still exist. If I am rightly informed the early use of water in the form of irrigation began in this country in the early 'forties. If my information is authentic Brigham Young, the founder of irrigation in the United States when he led a small band of 147 followers to the region which is now known as Utah, and encouraging his followers to be farmers said:



Large and small standpipes ensure surface irrigation. The larger one serves as a head. Water is distributed through the openings in the smaller one

cannot afford to have a crop failure. Every one naturally feels that a greater acreage is necessary. But though more acres make for more food, yet without sufficient water more acreage will be of little value.

Within the last few years the manufacturing industries have given to the tiller of the soil all kinds of devices for the improvement and betterment of the land. Efficiency of machin-



There are several patterns of sprinklers. They may be attached to moveable surface hose or to underground permanent pipes

"spread the water out upon the land and you will have bountiful crops." To-day there are many systems of irrigation in use and many variations of each system to suit the different sections of the country.

The principal methods are: (1) open ditch; (2) overhead system, divided into the sprinkler system, the spray nozzle system, the spray line; (3) the surface nozzle sprinkler and side



A strong spray machine like this is for use where city pressure is available. The nozzles rotate and distribution is over a large area.

line sprinkler; (4) subirrigation; (5) Thompson underground conveyed surface irrigation; (6) sunken bed or check system of irrigation; (7) raised bed irrigation.

Open ditch method. The open ditch method is perhaps the most primitive method. Its construction is simple and consists only in the digging of a ditch to convey the water to the place where it is wanted. Two kinds of ditches are usually spoken of in this method, namely the main ditch and the laterals. The main ditch carries the water from the reservoir or well, while the smaller ditches or furrows which lead from the main ditch take water to the crops that are being watered. This system was first used on all crops that were planted in rows such as potatoes, sugar beets, corn, fruit, and vegetables. The open ditch method is still in use and extensively employed.

The chief trouble in furrow irrigation is to divide the water in the head ditch equally among a large number of rows.

The sprinkler system. Some few years ago this system of irrigation was brought into prominence by Mr. Skinner and to-day the Skinner system of irrigation is known to almost every one interested in the application of water to plants. In brief the Skinner system aims to apply the water to the soil in the form of a fine spray, directed from specially designed nozzles above the plant. The water falls gently to the ground and in the same manner as rain. This method has met with the approval of many growers and at present extensive areas are under this method of artificial watering with excellent results.

There are several modifications of the sprinkler system to meet the needs of different conditions. The overhead system is applicable to commercial vegetable gardens, but does not make an artistic feature in a beautiful flower garden or on a well kept lawn. To meet the requirement of the last named condition there

has sprung into existence a most unique and highly effective underground surface sprinkler. This sprinkler is for use on lawns and flower gardens.

It consists of permanent water pipes which are laid under the ground and at given uniform distances sprinkler nozzles are brought to the surface of the ground. These nozzles throw a cone-shaped spray and are spaced so that the spray from one nozzle will meet that of the other and thus all of the surface of the soil is reached by the spray. The distance apart the sprayers must be placed depends upon the water pressure. The lines of pipes run parallel and several sprinklers are attached to the same line so that all may be turned on at one time. This method is, I think, unexcelled for the uniform watering of lawns. The nozzles being placed at the surface of the ground, they are not visible and do not interfere with the mowing of the grass.



A very practical way of using the nozzle line system in enclosed gardens. The fixture is not conspicuous and is out of the way.

A different form of the sprinkler system is seen when enclosed gardens are to be watered; the pipes are placed along the wall and not under the ground and instead of nozzles which throw a cone shaped spray there are small holes bored in the pipe to distribute the water. In some sections of the West notably southern California, a modification of this permanent system is in vogue. This consists of a short pipe one half inch in diameter and eight to ten

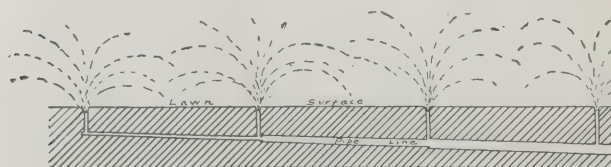
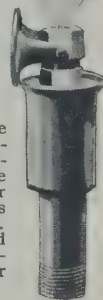
feet in length in which a number of small holes are made. The pipe is then raised six to eight inches from the ground. One end is fastened up while a hose is placed on the opposite end. This is quite effective for large lawns and is preferable to the round sprinklers.

The Thompson system. The Thompson system of irrigation is in use to a large extent in southern California. The method might easily be called the underground conveyed surface irrigation system. The name is at once clear when the method is described.

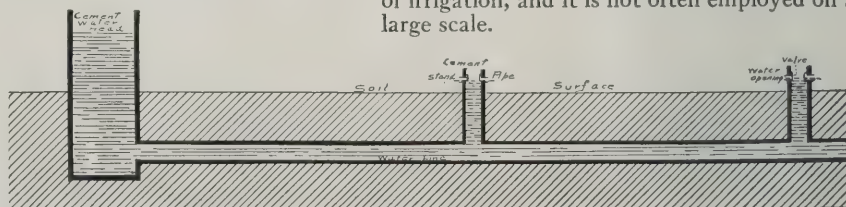
Cement tile are the conveying agents. These tile vary in size, determined by the amount of water which it is necessary to conduct. At the end of the row of tile is a head of water, held in a concrete basin. This basin is either round or square, and is usually about four feet in diameter or four feet square. The height varies from four to five feet. From this basin which serves as a head for the water, the tile is laid underground the entire length of the field. Along this pipe line at varying intervals are smaller cement standpipes one foot in diameter which come to the surface of the ground and extend about twelve inches above it. The distance apart of these smaller standpipes is determined by the crop and the volume of water which it is necessary to use. In an orchard they are usually spaced the same distance the trees are set, and are located at the ends of the rows of trees. In garden irrigation the distance is determined by the crop.

This system is operated by the use of four valves one on each side of the small standpipe and the water is controlled and regulated by the opening and closing of these valves. This method is satisfactory from certain standpoints: (1) the water is conveyed underground and no loss or leakage of water is encountered, (2) the water is more evenly distributed, (3) there is less loss and consequently a greater area of land can be irrigated by the same amount of water, (4) the control of the flow of water is easily and effectively regulated so that the operator can turn it on and let it run all night without watching. (5) The stream of water is even, regular, and uniform. (6) the water can be carried to different levels.

Sunken bed irrigation. This system is in vogue in many sections of California, and I see no reason why it is not adapted to other regions where the need of water is felt. As the name implies, the crops are planted in narrow beds surrounded with a shallow ridge of earth. The ridge prevents the water from spreading all around and the water can be turned in when it is needed in any bed. This system is really nothing more than flooding the soil, but regulated to any degree by the grower. Vegetable crops do the best under this form of irrigation, and it is not often employed on a large scale.



Method of laying underground pipe for a permanent lawn system where outside or city pressure is available



System in vogue when pressure is had from head in large cement tank. Distribution is through side holes in smaller pipes



Bearberry spreads over the foreground of this bank. It is a rapid grower on sandy soils fully exposed to the sun

Native Evergreens Suitable for Ground-Covers

EDWIN H. COSTICH, Long Island

SUGGESTING NEW USES FOR MANY PLANTS WELL KNOWN IN THE WILD, YET RARELY TO BE SEEN IN GARDENS

IN THESE days of slogans voicing the sentiment that we should "Use American Made" goods, it seems a fine opportunity to apply the idea to our gardens, and incidentally to get gardening folks acquainted with our native plants. And as ground-cover plants are coming to be more and more recognized as very important to good gardening and landscape work, it would not seem out of place to begin with them in developing a wider use of our native material.

Garden makers generally realize the need of more material to serve as covers to carpet the ground, something that will take the place of grass and cover that shaded bare space under the trees, that will clothe the grassy patches and join the shrub groups together.

And evergreen ground-covers are economical. When once planted they require practically no attention and many of them will thrive where it has been almost impossible to establish any vegetation before. Planted between the shrubs of the border they eliminate the necessity of hoeing, which is quite an important item in the upkeep of any garden; covering a washed-out bank they will do away with the inevitable gouged and furrowed appearance, and the work of filling in after each rain.

The plants noted here are primarily ground-cover plants, that is, plants that do not commonly exceed two to two and one half feet in height. Being evergreens, they include both broad-leaved and coniferous plants. Many of the species mentioned, though native, are not ordinarily obtainable in our own nurseries (except from a few specialists in native plant material); although they are adequately appreciated by the foreign trade; as our nurserymen wake up to their opportunities these plants will be more generally grown. Meanwhile, we can go to the woods, pine barrens and swampy places and collect them for ourselves. They will repay all the time and money expended on them by their charming and delicate simplicity and their adaptability to our gardens.

Presenting these plants as ground-covers is perhaps putting them in a new rôle. They have heretofore been considered, whenever they have been considered at all, as rock garden subjects. But that should not preclude their use as cover plants. Many of the plants described below have not been tried out in this way, and the experimenter may look forward to a good deal of enjoyment in testing them. There are several (as *Arctostaphylos*, *Taxus*, and *Juniperus*) that will undoubtedly produce desired

results in a shorter time than some of the smaller, slower growing kinds, but each one has some particular merit peculiar to itself that makes it a valuable addition to the list of our worth-while garden plants.

The Big Heath Family

THE heath family is especially rich in evergreen ground-covers contributing at least seventeen species native of the northeastern states and eastern Canada.

BEARBERRY or Deerfeed (*Arctostaphylos Uva-ursi*) is perhaps the finest of all evergreen ground-cover plants for dry, sandy, acid soil. Growing wild on the sandy wastes and pine-barrens of New Jersey, Long Island and along the shores of Cape Cod, it covers thousands of acres of cheerless sand with a veritable carpet of shining green. The long vine-like runners reach out over the ground, and in a short time cover it entirely. In the spring the inconspicuous pink and white flowers can be found hidden among the leaves, and later on the crimson berries are very noticeable. The Bearberry is used as a cover plant on dry banks, under shrubbery, or as an edging plant along a border it does admirably. If planted in a lime-soil country, it must have



Showy Andromeda (*Zenobia* or *Andromeda speciosa*) is a half evergreen about 2 ft. high with highly attractive white flowers. Foliage bluish white

soil specially prepared, as is the case of nearly all ericaceous plants.

BOX HUCKLEBERRY (*Gaylussacia brachycera*) is a low evergreen shrub with creeping branches. The coriaceous leaves somewhat resemble those of the common Boxwood. This is a remarkably beautiful evergreen, very closely related to the Bearberry and a coming plant for gardens and rockeries. It is reported as native in three states and should soon be available to our gardens.

MOUNTAIN CRANBERRY (*Vaccinium vitis-idaea*), a native of Arctic America and south through the New England States to Massachusetts, forms dense, low mats of dark lustrous green. It is especially suited to dry, rocky banks.

BOG ROSEMARY (*Andromeda glaucophylla* and *Andromeda polifolia*), besides being good cover plants are very showy in flower and the glossy whitened underside of the leaves is very distinctive. The small pinkish white flowers, borne in graceful terminal clusters, are very attractive. The *Andromedas* are adapted for rocky and border planting.

FETTER BUSH (*Leucothoe catesbaei*) is one of the few of our native plants that has had the recognition it deserved. It, however, has never been extensively planted as a ground-cover, but more often as a border plant in front of *Rhododendrons* to hide that "leggy" appearance of the long stems. The lavender and purple autumn and winter coloring of the Fetter Bush is in marked contrast to the heavy green of other broad-leaved evergreens.

SHEEP LAUREL (*Kalmia angustifolia*), a plant seldom more than two feet high, forms broad stretches of green covering through the woods. It is well worth planting not only for the evergreen effect it gives, but also for the delicate crimson flowers it produces in June.

SAND MYRTLE (*Leiophyllum buxifolium*) and **LABRADOR TEA** (*Ledum groenlandicum*) are very similar in all aspects. They have clustered flowers and characteristic rusty wool covering of the underside of the leaves. Few plants have more delightfully delicate flowers.

TRAILING ARBUTUS (*Epigaea repens*) and

the common **WINTERGREEN** (*Gaultheria procumbens*) are known to every one but they are seldom seen in cultivation. And yet they are both low evergreens and are natural cover plants.

SHIN LEAF (*Pyrola*) and the **PRINCE'S PINE** (*Chimaphila*) are low evergreen herbs nearly herbaceous. The flowers of the Shin Leaf are particularly showy for so small a plant. The variegated leaves of the Prince's Pine are remarkably handsome, especially against a background of fallen autumn leaves.

CREeping SNOWBERRY (*Chiogenes hispida*) is a creeping evergreen with very slender trailing branches. A very good ground-cover but preferably a rock garden plant, where it will carpet the rocks and earth very effectively.

Other Broad-leaved Kinds

BUT not all of the cover plants belong to the heath family. The **FLOWERING MOSS**, **Pine-Barren Beauty** or **Pyxie** (*Pyxidantha barbulata*) is a very dainty evergreen creeping plant producing delicate white flowers from its cushion-like masses. The **Southern GALAX** (*Galax aphylla*) is an evergreen herb distantly related to the Pyxie and worthy of being tried as a cover plant. It has been used occasionally in rock garden work, and as an edging plant in the woods it has been successfully planted on Long Island.

Every one acquainted with the woods knows the **PARTRIDGE BERRY** or **SQUAW BERRY** (*Mitchella repens*) one of the finest of native evergreen cover plants. The shining, roundish, evergreen leaves, often variegated with white lines and the crimson berries, are uncommonly attractive. The Partridge Berry thrives very well under evergreen trees, forming dense mats. The small, pink flowers are not particularly striking but are quite fragrant.

CROWBERRY (*Empetrum nigrum*), a prostrate, spreading heath-like plant, is a pretty evergreen said to be best adapted to rock gar-



Sand Myrtle (*Leiophyllum buxifolium*) has white flowers; leaves are rusty color below



In winter time evergreen cover plants greatly brighten banks and roadways. *Andromeda floribunda* and *A. polifolia*

den planting but will thrive vigorously when planted in shaded places in the woods. The inconspicuous flowers are followed by black, edible berries.

BROOM CROWBERRY (*Corema Conradii*), growing on the sandy pine-barrens of New Jersey is one of the showiest of evergreen flowering plants. It is a low, much-branched shrub with narrow leaves quite like those of the heath. It is only a question of time before the majority of these plants find their way into our gardens, but in the case of the *Corema* the time is short for it has already attracted the attention of growers of native plants.

RAT-STRIPPER (*Pachistima Canbyi*), a low evergreen shrub, native of the mountains of the Virginias, is one of the handsomest of trailing evergreen plants. This does well when planted en masse, as an edging plant, or in rockeries—it seems to thrive best in shaded woodland plantings.

SPINDLE BUSH (*Evonymus obovatus*), semi-evergreen trailer, is well adapted for planting as a ground-cover under shade trees. It would be suitably planted under tall, broad-leaved shrubs.

Dwarf and Trailing Conifers

AMONG the coniferous plants, the **CANADIAN YEW** or **Ground Hemlock** is a remarkably successful ground-cover. The spreading and occasional upright growth of its slender feathery branches, and the added beauty of its cheery red cherry-like fruits, make it one of the most finished of evergreen ground-cover plants. When planted thickly throughout a woodland it adds the touch of the primeval. It will thrive in any well-drained soil, and sometimes does well in moist places. An ideal evergreen ground-cover is a combination of Bearberry and Canadian Yew—the upright spikes of the Yew lending the needed contrast to the broad, even stretches of the Bearberry.

The depressed and trailing forms of the **Common Juniper** (*Juniperus communis*) are also excellent cover plants. *J. communis depressa*, with its spreading prostrate branches covers large patches of ground in its native habitat. *Juniperus horizontalis* is said to be even more procumbent in habit than variety *depressa*, and has long, trailing branches.

“Pay Your Money and Take Your Choice” F. M. THOMAS

Pennsylvania

AN APPRAISAL OF RECENT OFFERINGS OF NEWER IRIS AND OTHER HARDY PERENNIALS FROM AN AMERICAN GARDENER'S VIEWPOINT—MAKE YOUR SELECTIONS FOR PLANTING NEXT MONTH

IT IS almost a commonplace that every aspiring garden-enthusiast looks to the catalogues of European firms like Perry, Wallace, Barr, or Goos & Koene-mann for the latest and best developments in hardy perennials.

Outside of the Iris and the Peony, in both of which plants we make a fairly good showing, I can at the moment recall only a couple of Phloxes and I think two varieties of Heleniums as constituting the sum-total of our original output in this line. Possessing, as we do, genuinely great plant growers or raisers, there seems to be no reason why, potentially at least, we should not rival any of the European countries.

However, it is not my intention to examine into the cause of this rather discouraging state of affairs, but rather to discuss its particular result—that the inquiring amateur who looks through the alluring list of novelties is served with descriptions of plants given them by the foreign firms that originated or disseminated them. Now, these descriptions are sometimes quite accurate, sometimes they are altogether inaccurate; but very seldom are they what is needed to help the prospective collector decide whether the particular plant in question is the sort of thing for his garden. Of course this method of procedure on the part of the nurserymen is often unavoidable in cases where no opportunity is to be had for trying out the novelty prior to its introduction; but as the catalogue descriptions rarely vary from year to year, it would seem that the gardening public is not getting quite all it deserves.

In the hope that my own experiences may perhaps be of some value to others, I shall briefly go over a list of some of the recent novelties, always looking at the subject from the viewpoint of the American flower-gardener. Beyond an accurate description, any strictly impartial rating is of course impossible; the personal equation is bound to enter here—but that is sometimes oddly illuminating.

OF ALL the hardy plants introduced within the last few years, the new varieties of *Anchusa italica* are probably the most meritorious. Indeed, their reputation has already spread so far that it may be questioned whether they can be considered in the light of “novelties” at all; so it is only to clear up certain points about them that I have included them in my list. It is quite true, as the growers claim, that next to Delphiniums the Anchusas are the best hardy plants with blue flowers, but it is quite as untrue that they generally grow six feet high, or that they bloom all summer, or that, strictly speaking, they can be classed as perennials at all! Their real blooming period is six or seven weeks at best, their real height from three to five feet; and, as for their life-time, it is not much longer than that of the Foxglove—at least no one should count on their lasting more than one additional season after they have come into bloom. The immense succulent crowns soon split up with age, water collects in the hollows, and by spring there is nothing left but an unattractive black mass of decay. Encouraging the formation of strong new growth by cutting the stems to the ground immediately after flowering will help to some extent (the same is true of the Foxglove), but it is something of a gamble at best. As for the flowers, one can't praise

them enough; it is a toss-up between *Dropmore* and *Opal* as to which possesses the most delicious shade of blue—I am inclined a trifle toward the latter. Far inferior to either is *Perry's Variety*, which I am glad to see is already dropping out of the catalogues. It is of a much deeper blue, to be sure, but the flowers are much smaller and the whole plant is of a most disagreeably lank and leggy habit.

Proceeding alphabetically let's make the next stop at the *Aconitums*, two varieties of which the catalogue says are “splendid acquisitions.” *Sparks's Variety*, blooming in late June, has a most graceful, branching habit, with finely divided leaves and flowers of the richest deep violet. It is a much taller grower than the old *Napellus*, and altogether quite supersedes that kind. As a pendant we have



For August and September bloom there are several varieties of the dwarf Asters (amellus section)

Mr. Wilson's aconite (*A. Wilsoni*) which, with me, has bloomed in early October, not in September, as has been repeatedly stated. It is a very robust grower—five or even six feet tall, with coarse Delphinium-like leaves and very large, fully inflated flowers, of the most delightful shade of rich lavender,—a shade that for cool purity of tone recalls certain Irises of the pallida group. It is not so branching as Sparks's, so the older it grows and the more spikes to a clump the better the appearance.

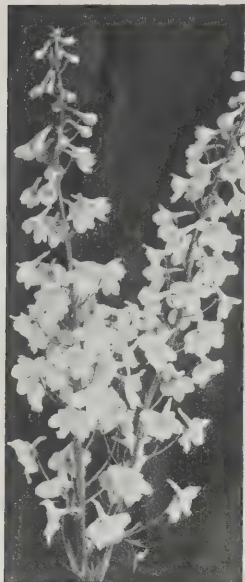
THOUGH their seasons of bloom do not over-lap quite accurately, *Aconitum Wilsoni* makes a charming combination with *Anemone Queen Charlotte*; and let me say that the latter plant is still to my mind the queen of all the pink Anemones. *Alice*, which has been trumpeted as an improvement over *Her Majesty*, is most decidedly nothing of the sort, though a rather handsome flower in its own way. It is a deeper pink, but, unfortunately, also a more purplish tone; in fact one step more and it would not be far removed from those horrible aniline shades that crop out occasionally in Annual Asters. *Kriemhilde* and *Loreley*, two other new-comers, appeal to me much more. Which is which, I have been unable to discover, for they look exactly alike to me,

but at any rate they have flowers more nearly double than *Queen Charlotte*, but with narrower petals, stained a deeper pink at the tips. I find them rather variable both in form and color, but never do they attain the “reddish lilac” credited to them by the introducer.

Artemisia lactiflora is a very robust and rank growing plant, four or five feet tall, with huge, gracefully paniculate heads of flowers something in the style of the Tall Golden-rod. The individual flowers are very minute, and never seem to really open, but the whole plant gives a charming foamy effect of white that is well set off by the fresh green leaves, drooping and deeply cut. Its odor, if not exactly that “of Hawthorn,” is decidedly pleasant—pungent and mildly aromatic and not at all rank. *Artemisia lactiflora* is beginning to grow shabby just as the *Hardy Asters* come into bloom. It is good indeed to see our American flower gardeners at last awakening to the possibilities of these glorious native plants—after they have been appreciated for so long abroad! Prophets in their own country indeed! None of the newer varieties that I have seen are poor; perhaps the best of all is *Climax*, which has very large daisy-like flowers with soft yellow centres, that fairly load down the big tall plants. Their color is that unapproachable lavender seen only in these plants and in a few Irises, such as the incomparable pallida dalmatica. *Feltham Blue* is another excellent single; *Beauty of Colwall*, generally listed as the “best double,” proved something of a disappointment to me—the color and shape of the individual flower are excellent, but they open irregularly, and the plant seemed rather stiff in habit. *St. Egwin* is not a clear pink, as I had expected, but a delightful lavender-pink. It is a rather short and compact grower, and fairly smothered with bloom.

Aster grandiflorus is quite all that has been claimed. Blooming in early November, even after *Aster tataricus*, its rich purple flowers are more than welcome. In color they closely approach the wild New England Aster, but they are a trifle larger and the plant is under three feet in height. The dwarf *Amellus* section, blooming much earlier in August and September, have never particularly appealed to me, though undoubtedly they give fine effects in large masses. Of these *Perry's Favorite* is an excellent lavender-pink, and *Beauty of Ronsdorf*, with less pink and more lavender, is equally good.

IN THE Delphiniums there is surely an embarrassment of riches. Although Kelway and Son had been offering hundreds of varieties for some years back, it is only within the last season or two that we in America have begun to get a taste of the newer hybrids. Of these, *Capri*, *Mrs. Brunton*, *Moerheimi*, *Theodora*, and *Lamartine* are generally classed in one group as the “Belladonna Hybrids,” and they far surpass their parent in both their graceful branching growth and their wonderful freedom of bloom. Indeed this freedom of bloom is perhaps their most striking quality; where the older varieties gave only two crops of flowers, these give at least four. Indeed with me *Belladonna Semiplenum* bloomed almost continuously from the first of June to the middle of October, one crop of flowers springing up before the others were faded.



Moerheim's Larkspur is well described as a white counterpart of Capri

distinct of single Delphiniums. Its graceful spikes of flowers are of the richest corn-flower blue, with an unusual soft brown centre. This latter together with its soft and finely cut sage green foliage help to give it a different quality from any other Larkspur, but its chief glory is its color; massed, it gives an effect that cannot be approached for richness and depth. *Larmartine* is the darkest of all; its very deep navy blue, set off with a pure white eye, is very striking, though not so harmonious as *Theodora*. The variety *Moerheimi* has been so lauded that we might reasonably be prepared for a slight disappointment, but happily nothing of the sort is in store for us. As the originator has stated, it is the exact counterpart, in form and habit, of *Capri*, but in color a pure white, with a cream white eye. The flower is precisely like a much magnified white Chinese Larkspur, which sets one speculating as to its parentage. Those unfortunate gardeners who have difficulty in growing *Lilium Candidum* should not fail to avail themselves of *Moerheimi* as the best of substitutes, for grouping with the blue Larkspurs.

I must confess to a rather decided prejudice against *Double Delphiniums*. As a rule, they strike me as being altogether too showy; "over-dressed," one might say. So I shall leave their extended description to some one more sympathetic to their charms. I must say a good word, however, for the excellence of *Mrs. Creighton* and *Zuster Lugton* as cut flowers. Both these varieties are in shades of very deep blue and violet, which, indoors, take on a peculiarly luminous effect, like bits of old stained glass. *Belladonna Semi-plenum*, as its name might suggest, escapes all the usual faults of the double kinds; and for this variety I have nothing but praise. Its loose semi-double flowers are of a slightly deeper blue than *Capri*, with a little dash of lilac on each petal. This does not "mud" the color in the least as one might expect; at a distance it is entirely invisible, and close at hand it only gives the flower an added charm.

Modern Irises That Outclass the Old

IT WILL be well to consider the Irises in detail at this time especially as their planting time is at hand whereas the other subjects can wait a month, and better indeed, some perennials stay in the catalogues year after year

with little or no change or improvement. But others, more plastic in the hands of the plant breeder (or perhaps merely more popular with the public), are being constantly developed.

In the case of the German Iris, this development has been especially marked.

As the usual story runs, a majority of the newer Irises were appreciated in England and the continent long before they reached this country. Nevertheless, since the introduction by one of our largest nurseries of the new Goos & Koenemann seedlings, shortly after they were first disseminated abroad, the list of available European novelties has grown steadily longer, until to-day practically every progressive nursery catalogues at least a few. And a new impetus to the growing of the newer Irises has undoubtedly been given to the American flower gardeners by Mr. B. H. Farr, who, since 1910, has been sending out his own seedlings at the rate of four or five a year. That Mr. Farr has been almost without a rival in the American field may seem a bit strange, considering how easy a plant the Iris is to experiment with.

One of the most striking characteristics of a majority of the newer Irises is the large size and great substance of their blooms. The massive form of the *pallida* and early-flowering *germanica* types predominate, and no doubt this has been secured by using these types as seed parents to be crossed with the smaller, but often more brilliantly or richly colored *variegata* and *squalens* sections. This combination of brilliant coloring and large size is particularly noticeable in the Goos & Koenemann novelties. One might easily imagine that four at least of these Irises are descended from a single seed parent, even from a single pod, so closely are they related in their general scheme of coloring: white or yellow standards, and broad falls of some purple shade, with wide light colored margins:

Rhein Nixe has pure white standards and deep violet-blue falls, with broad white margins; *Loreley* has the same violet-blue falls, but margined cream color, while the standards are a light lemon yellow. *Princess Victoria Louise* repeats the same color scheme as *Loreley*, but with falls of a light reddish-purple. In *Nibelungen* the standards are of a clouded

fawn-yellow; the same shade margins the falls, which are a deep purple. None of these varieties is particularly subtle or harmonious in coloring, but all have an attractive freshness and brilliancy, and are not too garish to combine easily with Irises of similar types. Of the four, *Rhein Nixe* and *Princess Victoria Louise* are perhaps the most desirable.

Two other Goos & Koenemann seedlings are of a different type. *Pfaunauge*, or Peacock's Eye, is a name that raises high anticipations, but to my mind the plant is comparatively disappointing; very dwarf, not large in flower, and though distinct, too somber in color to be pleasing. *Iris King* (*Iriskoening*), however, is a magnificent flower, one of the finest of all in its depth and richness of coloring. The bloom is large and widely expanded, the standards a fawn-yellow, of unusual quality, the falls a deep maroon-red, of peculiar velvetiness of texture with a narrow margin of deep yellow. This same variety, by the way, is sometimes seen in English lists under the name of *King of Irises*, and in French catalogues as "*Reine des Irises*." This last a rather amusing perversion.

Certainly the French are quite able to stand on their own merits as raisers of new Iris, when they have produced such splendid sorts as *Alcazar*, *Archeveque*, *Oriflamme*, *Monseigneur*, *Prosper Laugier*, and *Edouard Michel*. None of these, strange to say, is the creation of M. Victor Lemoine, whose name has been long associated with the most wonderful improvements in both herbaceous plants and shrubs.

The first three varieties mentioned above are of the early flowered *germanica* type, and in coloring are related to such well-known kinds as *Amas*, *Kharpur*, and the common, but by-no-means-to-be-despised, "*Blue Flag*." All three are of robust growth, with immense blooms that give a particularly imposing effect in the garden.

Alcazar has standards of a light dull violet and falls of deep purple, flushed and veined bronze toward the base—a somber yet striking coloring, that might well deserve the name "*Nuee d'Orange*," really the title of another French introduction, said to be equally fine, but which I have not yet seen in bloom. *Archeveque* has a brighter, and to me a richer and more pleasing coloring, with plum-colored standards and very deep-glowing purplish-plum falls, suggesting the petals of a pansy in their extreme velvetiness of texture. Some gardener of our middle Atlantic states, where the blooming periods of Irises and late Tulips overlap, should try combining this magnificent Iris with that equally magnificent Tulip *Walter T. Ware*. Unfortunately that gardener will have to be a person of considerable means, if



The Monkshoods in Sparks's and Wilson's varieties bloom from June to October



The Milk-flowered Ragweed is really useful for mass effects of white foam in late summer (*Artemisia lactiflora*)

he invests largely in these two plants at their present prices! *Oriflamme*, the last of the trio, is also the largest, possibly the largest of all German Irises, with lavender standards and long drooping violet-purple falls, quite in the manner of *Amas*.

Monseigneur (or *Monsignor*) is both a curious and handsome flower. The ground coloring of both standards and falls is a rather pale slaty violet, but in the falls this is most densely and intricately veined and overlaid with deepest claret-purple. "A very beautiful piece of rich coloring," as one catalogue aptly describes it.

Prosper Laugier is a genuine improvement on *Jaquiniana*, formerly the most beautiful Iris of the *squalens* section. The standards of *Prosper Laugier* are of almost the same clouded, iridescent bronze, the falls, broader and more wide-spreading than *Jaquiniana*, are of the richest wine-color, veined deeper at the base.

As for *Edouard Michel* (of the *pallida* type), an improvement on both *Caprice* and the older *Mme. Paquette*, it is one of those Irises to which no description does justice. The flower is of the largest, with falls thick, broad and fluted, and both standards and falls are restrained—saturated—no word quite expresses it, with the most luscious deep claret-red. The flower stems are above the average in height, and they bear the flowers aloft with a very fitting dignity.

Crossing to England, we find a bewildering number of new Irises, of all degrees of merit, many entirely unknown in this country. Of all these sorts, the most unusual and strangely attractive is *Isoline*; a flower that, literally, must be seen to be appreciated, as it is almost impossible to give any adequate idea of its peculiar quality of coloring. Standards of dull clouded pinkish-lilac, falls old rose, suffused purplish, and shot with coppery gleams that seem to converge in the distinct "old gold" beard—this is an approximation of the general effect, but the whole flower has a unique opalescence impossible to imprison in words. The blooms are large, well-formed and of great substance, with long, drooping falls, and the plant is tall and vigorous in habit, with leaves of unusual size.

The general effect of *Isoline*, if not pink, is distinctly pinkish, and there are a number of Irises that also must be placed near the red rather than the blue end of the spectrum—in particular *Windham* (described under the Farr seedlings), *Queen of May*, *Her Majesty*, *Mrs. Allan Gray*, *Trautlieb* and *Lohengrin*, all of the *pallida* section (Some of these could hardly be called new, but I group them here for the convenience of the flower-gardener who might wish to know the relative value of the various so-called "pink" Irises).

Queen of May was the first to be introduced, but it is still one of the best in its vigorous growth, tall flower stem ($3\frac{1}{2}$ ft.), and large, well-shaped flower. The color is a light lilac, of rather pinkish tone, shading a trifle deeper in the falls, which are veined darker toward the base. A brighter, clearer color is *Her Majesty*, though a plant shorter and less robust in habit. The standards are a really exquisite shade of lilac-pink—almost an old rose—the falls have a deeper and more elaborate veining than *Queen of May*. With the exception of *Windham*, *Her Majesty* is the nearest approach to a true pink of any in this group, and when cut or seen close to, the bloom is one of the most attractive of all, but, in common with most flowers having distinct veins or eyes, is hardly as effective in the gar-

den, particularly in large masses, as the self-colored sorts such, for instance, as *Mrs. Allan Gray*. This variety is of a pale uniform pinkish lilac, not so bright as *Her Majesty*, but of beautiful soft tone and silky texture. The medium-sized flowers are of a particularly neat and graceful outline, and the plant has the odd and delightful habit of often sending up a second crop of flower stems in August, generally considerably larger than the ones of June. *Trautlieb* is another self-colored lilac-pink, shading to white at the base of the petals; small, but charmingly clear and dainty in coloring. *Lohengrin* is the least pink and the largest of this group; a superb widely expanded, thick-petaled flower of rich silvery lilac, shading deeper on the falls; much the tone of a *Cattleya Orchid*, as the originator has noted.

It goes without saying that these "pink" Irises should never be seen near the vivid yellow and red-brown variegatas, and in combining them with the lavender and violet sorts it is well to remember that it is best to use those approaching nearest to blue as they make the pink appear purer and more intense by contrast.

Of the other English varieties, *Caterina* is a sort of variant on the incomparable *pallida dalmatica*; hardly an improvement, though a fine enough Iris in its own way. Its conical lavender standards are of a rather more bluish tone than *dalmatica*; the falls, long and drooping, instead of horizontal, are veined brownish at the base. *Caterina* is very fragrant, and a remarkably tall grower—often four and one half feet.

There are numberless other English sorts, some of which I have not tried, some I have tried and found wanting (like the atrocious *Mrs. Arthur Dugdale*, surely the ugliest Iris in existence) and still others that are at present hanging in the balance, like the strange hybrids of *Iris paradoxa*, *Parvar* and *Paracina*, wonderful in their somber and velvety purple-blacks, but apparently difficult to handle and shy or uncertain bloomers. Last to bloom is the sumptuous *Black Prince* (or as it is sometimes called in this country, *Black Knight*) introduced ten years ago, but still scarce and expensive, and still the finest of all the very dark purple germanica sorts.

The Farr seedlings already referred to are some thirty in number, and as variable in merit as they are in size and color. Here, particularly, it must be largely a matter of personal taste in choosing "the best"; nevertheless, I think few will be disappointed in the kinds described below, though they might wonder at the omission of certain names.

Of the thirty, five seem to me to be of the highest quality, comparable with any sorts now grown: *White Knight*, *Anna Farr*, *Minnehaha*, *Quaker Lady*, and *Windham*. In *White Knight*, originated by Prof. Saunders but dissembled by Farr, we have at last what has been so long needed—a late white Iris, as good in its season as the early-blooming *florentina*. It is solidly white, a big improvement over such near-white sorts as *Miss Willmot*. Whether it surpasses *Wallace's new Kashmir White* I do not know, never having seen the latter variety in bloom, but at least it would seem that *White Knight* is near enough to perfection to suit the most exacting. And as *White Knight* is the best of white Irises, so *Anna Farr* is the finest of the light colored sorts. Its standards are white, lightly bordered pale lavender-blue; its falls, thick and of a porcelain-like smoothness, are the same pure white, with a few lav-

ender-blue markings at the base. A noble flower of great size and the highest beauty. *Minnehaha*, almost equally large and massive, possesses a coloring totally unlike any other Iris I have seen, with standards of a soft, pale creamy yellow and falls of the same shade, deeply veined with converging lines of maroon. This should prove a valuable variety for use in hybridizing, for what we now most need in German Irises are large-flowering sorts in the pale and rich yellow shades of *Flavescens* and *Aurea*.

Quaker Lady should be classed with *Isoline* for subtle and evanescent charm. Standards are a smoky lavender, with yellow shadings, falls an exquisite soft "ageratum" blue, shading to old gold at base, with a deep yellow beard. Though the yellow shadings light up the flower as if with a golden flush from within, the whole effect is curiously soft and subdued.

Windham, which might be called a glorified *Queen of May*, is undoubtedly the finest variety of its color. Standards are an exquisite clear, pale lilac-pink, falls deeper with still deeper veinings; both standards and falls shade to white at the base. As perfect in size, form and habit, as in coloring, *Windham* is indeed an Iris difficult to over praise.

Very close in merit to the varieties just described are seven others: *Mary Garden*, *Navajo*, *Wyomissing*, *Montezuma*, *Pauline*, *Mary Gray*, and *Juniata*.

I have known persons who actually disliked the variety *Mary Garden*, but, bizarre as the coloring undoubtedly is, to me it has a decided fascination. Mr. Farr's description is so accurate that I quote it verbatim: "Standards pale yellow, flushed pale lavender; long drooping falls, creamy white, minutely dotted and veined maroon; stigmas clear yellow."

Navajo is a huge, striking flower, with bronze-yellow standards, and deep maroon falls lightly veined yellow—a sort of cruder and more startling edition of *Iris King*.

Wyomissing, though hardly as remarkable as description or color plate would lead one to suppose, is nevertheless very distinct and delicate—a sort of pale flesh-color, with dull pinkish shadings and veinings at the base of the falls. It combines effectively with the well-known variety *Mrs. H. Darwin*.

Another very large and imposing Iris from the same source is *Pauline*, whose silky petals are a solid, deep, rich mauve, contrasting oddly, yet effectively with its deep orange beard.

Montezuma is almost as curious as *Mary Garden*, though hardly so fine. Again I quote the originator: "Standards deep golden, minutely dotted brown; falls yellow and white, veined purple and dotted brown: unique." To which I should add that the total effect is a sort of metallic golden-bronze.

Mary Gray and *Juniata* are obviously descendants of *pallida dalmatica*. The first, a large and lovely flower, is deeper and bluer in tone than *dalmatica*; *Juniata* is also deeper, but more purple, more on the order of *Albert Victor*. It is notable for its unusually tall flower stem—five feet—and for its luxuriant mass of long, drooping foliage.

Glory of Reading, *Lewis Trowbridge*, *Mt. Penn.*, *Powhatan*, *Rose Unique*, *E. L. Crandall*, and *Pocahontas* (the last two variations on the *Anna Farr* type) are all worth growing for one reason or another—the remaining seedlings are unimportant.

[Discussion of plants other than *IRIS* will be continued next month.—ED.]

A Strawberry Specialist's Intensive "Systems"

F. H. VALENTINE, ^{New} Jersey

INTENSIVE BERRY CULTURE IN HAND TILLED BEDS YIELDING 40,000 QUARTS TO THE ACRE

A METHOD of strawberry growing that produces "at the rate of" 40,000 quarts to the acre, or even 10,000 to 20,000 quarts to the measured acre, is worthy of attention. Tice C. Kevitt, the strawberry specialist, claims that his system will do this—and more. He is constantly studying the strawberry, experimenting in new ways of handling it as a crop, and in the production and testing of new varieties. Thus it comes about that he has an "old system" and a "new system." I say "has an old system," because beds set under that plan are still fruiting.

Look at the Old System

THERE is no question that the "old system" produced big berries and lots of them. Those familiar only with the matted row method of growing strawberries can hardly realize how quickly these big berries fill the baskets, which is what makes these heavy yields possible. Experienced horticulturists, after careful examination of the beds in full bearing, have estimated yields as high as 50,000 quarts to the acre. But the method involved a tremendous amount of hand labor, which is a drawback when operations are to be conducted on an extensive scale.

By this old system, strongly rooted plants were set in beds five rows wide, just one foot apart each way, each plant thus occupying one square foot of space. The spaces between the beds were wide enough for a man to get through comfortably in doing the work. From these spaces, he could reach to the middle of the beds in hoeing and in picking the fruit, so he need never set foot in the beds. The runners are all kept off and the beds absolutely free from weeds. By this means, great strong-rooted stools are formed which go on producing year after year. Of course, fertilizers are applied, and the beds are mulched in the fall. So long as fertility is maintained and the plants are kept vigorous and in good health, so long may one expect good crops of fruit. One quart to the hill is a modest estimate with a good yielding variety, and I have seen hills of the Glen Mary that would produce much more. This is certainly intensive culture. But to keep off all runners and cultivate entirely by hand requires much labor—a commodity not over-plentiful in the market, and costing much money. For the amateur with a small area, and able to give constant attention, it is a very good method.

Now for the New System

WHAT Mr. Kevitt calls his "new system" requires more plants to a given area, but arranges them differently so that a wheel hoe or hand cultivator may be used, and hand labor be reduced. In the new system, the rows are two feet apart, and three plants are set to each foot of row. This is pretty close setting. The plants may be potted or layers, and be set in late summer or fall. The photograph shows a field, set November 15th last, as it was on June 23d. The plants

were carrying a heavy crop of fruit, and Mr. Kevitt estimated the yield at 10,000 quarts per acre which, I think, was conservative, if a good proportion matured. Double this yield is expected the second year. Here certainly a crop is produced with a minimum of labor. *It receives no cultivation till after the first crop is gathered.* After setting, at any time before freezing weather, the rows, not the spaces between, are covered to a depth of three inches with coarse, strawy manure, swale hay or any good mulch, as a winter protection. As soon as the plants show life in the spring, the mulch is raked off the plants, but left close around them. After fruiting is over, they are cultivated and kept clean. The spaces are wide enough to allow the use of a hand cultivator. For continuous fruiting, the runners should be kept off; but, if new plants are desired, some may be allowed to grow. But no plant except the strawberry must be permitted. The commercial fer-

mends rows three feet apart and plants one or two feet apart in the rows.

The Glen Mary is the variety usually grown for market as it is strong and vigorous in plant, a heavy bearer of large, handsome fruit that ripens through a long season. Mr. Kevitt says that in more than 20 years' experience and testing more than 100 varieties, he has never fruited any variety from which he has realized as much money. There are varieties of better quality which are preferable for the home garden. Of these, the Chesapeake is one of the best though a little weak in plant.

Mr. Kevitt had a "field day" June 23d (postponed from June 16th because of the lateness of the season) to give horticulturists generally an opportunity to inspect the results attained, particularly by his "new system." He also gave them the opportunity to pass upon the apparent merits and demerits of a large number of varieties of what he calls

"a new race of strawberry plants." These were the selections from 30,000 hybrid seedlings grown in 1913. Several of them appear to have much merit, but more than one—or two—seasons are necessary to prove the worthiness of a new candidate. This is shown by the fact that last year a number of horticulturists selected Beal as the best of these seedlings, while this year several others appear more promising than that variety. Not only is more than one season required, but tests on a variety of soils and under varying climatic conditions are necessary. The present season's weather conditions are classed as very unfavorable.

A Look at Some Novelties

AMONG these new hybrid varieties which some of the visiting horticulturists preferred to the Beal, are the Seitz, of a rich

red color inside, with a strong vigorous plant growth; the Lobb, good but soft; Von Hindenburg, which was preferred by one old market grower to any other; Frey, a finely colored dark berry; Davis, medium but of uniform size, heavy bearer, large hull, color good, made a most favorable impression; Runyon which showed up well.

The ideal strawberry plant must have strong vitality to carry it through adverse as well as favorable weather conditions; must have a mass of long, fibrous roots that go deep for moisture and plant food; must produce a large number of fruit crowns that send out strong fruit stems to sustain the load of fruit; must be perfect-flowered; must have strong and abundant foliage to protect the fruit as well as to maintain the vigor of the plant; must send out strong runners to reproduce its kind.

The fruit must be borne abundantly, be of a good bright red color, even the inside, firm in flesh, sweet and luscious, and of aromatic flavor. For home use, a lack of firmness may be excused if superior quality be present. Possibly some one of these new seedlings may be the ideal for which we are looking—possibly!



Strawberries grown by the "new system." Set out November 15th, photograph made June 23d. Variety Glen Mary

tilizer used is dried blood and bone. The essentials of this system are:

- (a) Fertile soil well filled with humus.
- (b) Strong, well-rooted plants.
- (c) Protective mulch during winter, to be kept around the plants during summer to conserve moisture, keep down weeds and keep the fruit clean.
- (d) Moderate application of a suitable commercial fertilizer.
- (e) Frequent and thorough cultivation during summer.

See the Possibilities in This System?

WHILE it may be as well to set the plants a little earlier, they may be put out after almost any crop is off in the fall, a crop of fruit be gathered early the next summer, and if desired, the ground plowed and late corn, cabbage, or other fall-maturing crop be grown. Of course, after a strawberry bed is well established, it would be more profitable to keep it producing year after year. But the securing of the first crop before any cultivation is required, gives a good margin of profit on the start.

For horse cultivation, Mr. Kevitt recom-

Saving Labor in Land Cultivation

FRANK E. GOODWIN
Missouri

TRACTORS FOR GARDEN USE, THEIR POSSIBILITIES AND LIMITATIONS FOR GENERAL CROPS WHEN LABOR IS SCARCE

THE urgent appeal of the Administration for largely increased acreages of food crops was wonderfully responded to by a vastly greater army of volunteers than will be called to the colors. Within a few days after the Call to the Farms, millions of acres hitherto used for parks, lawns and ornamental gardens were scarred deep with the plow, and the deep scars were smoothed with harrows, and dedicated to the production of "things to eat."

The successful production of food crops requires fertile soil, a properly prepared seed bed, seed endowed with strong vitality, and work. Once the young vegetables have pushed their tender leaves above their earthy bed, they must have constant care to bring them to maturity in profitable quantities to repay the gardener for his outlay of time and effort. The most perfect seed bed, planted with carefully selected seed of greatest possible vitality, and started under ideal growing conditions will repay only with losses if frequent weeding, cultivation, and spraying are overlooked.

When the crops have ripened they must be harvested at the proper time—neither too early nor too late; in weather that is neither too damp nor too cold.

Summed up in a word, the successful, profitable growing of food crops depends most largely upon labor.

The urban dweller, depending upon his own individual efforts, may bring a quarter acre garden to maturity by devoting an hour morning and evening, and all of Saturday afternoons to his task. If he is the father of a couple of half-grown boys he may increase this to half or three quarters of an acre. One man steadily employed as caretaker of a small estate may, with the owner's



The old way and the new. The small gasoline driven machine designed to supplant the horse in cultivating moderate-sized areas

assistance, make an acre garden. But above an acre competent labor must be employed.

Where is labor, skilled in crop growing for pleasure and profit, to be obtained? A million able-bodied men are called to arms. The farms require an army of laborers to make and market the commercial crops. The speeding up of factories furnish employment for all who will work. Competent help is scarce and will grow to greater demand when the Government is well started in filling its requirements. Where, then, shall the grower of food crops look for relief?

The small farm tractor—humble brother to the pleasure automobile.

Necessity, mother of invention, gave birth to the farm tractor for general use but a few years ago. True steam tractors came into limited use shortly following the Civil War, but these we will pass over with this brief mention.

The internal combustion engine, fed with gasoline, which made the automobile, the motor boat, and the aeroplane possible, also became the heart of the farm tractor. And while to-day gasoline flows through the main arteries to the heart of this powerful machine, kerosene is fast replacing gasoline as fuel, and distillates are used in very limited quantities.

The power of the motor is directed to wheels or "crawlers" by reducing gears. The wheels furnish support for the mechanism and give traction to the machine so that it becomes the motive power which draws the plow, harrow, cultivator, and harvester upon the land. A separate gear engaging at the will of the operator, supplies power for belt-operated machinery while the tractor stands at "parade rest."

While more than 100 firms are building farm tractors in considerable or small numbers, one can count upon the fingers of one hand the tractors which are adaptable for the farm of 50 acres or less. A great majority of tractors are

designed to serve farm owners whose acres number from 120 acres to as many thousands. The choice of tractors which may relieve the burdens of the man with few acres is restricted to three or four makes of machines, each of which is vastly different from the other.

Up to this time, and probably for some years to come, it has been necessary to build tractors of heavy weight to provide tractive power sufficient to pull the implement or tool for work in the field. In almost every case it has required half of the motor's power to move the weight of the tractor itself. Thus it is that a tractor, operated with a motor of ten rated mechanical horse-

power, will only provide five rated horsepower at the drawbar—the mechanical term of denoting the pulling power of the tractor.

But it must be distinctly understood that rated horsepower is not the same as animal horsepower. A tractor rated at five horsepower at the drawbar and ten at the pulley or belt, will not perform the same work that five horses will, for the reason that the tractor's rating is its maximum, while the horse itself has great reserve strength.

Thus the 10-5 tractor will perform about the same work that two average horses will under most conditions. Its cost will be about the same.

Owing to the very limited number of tractors which will attract the attention of owners of small tracts of 50 acres and under, the reader need not consume much time in looking over the market if he decides he can use a tractor with profit to his "farming" operations. His only concern need be which of the few he can most profitably add to his equipment. At the



Rocks can be moved, stumps pulled, and ground cleared by a machine of this type. Useful for heavy construction work



For hauling loads around the grounds. The engine-driven machine is always ready and needs but little attention when not in use

beginning he should ascertain how many horses he would require to do his work, and select a tractor whose cost will be approximately the same.

If the land owner is a "one-horse" man, and his acres are small in number, then he will require nothing larger than a garden tractor. This is a walking engine; the operator being obliged to trudge along behind it, on foot, as indeed he would if he employed a single horse.

Such a tractor will not "break" the land with the plow, even though it has been under cultivation for years. Plowing will necessarily be done by horse, as heretofore. But it will cultivate the garden spot and do it even better than the horse, and is always ready for its tasks. It will keep the ground well stirred and should, under most conditions, serve the owner well. When not employed in the field it can be used to supply power for operating a small electric light plant, a grindstone, pumping jack, cream separator, churn, or other small machinery on the place.

Another type of tractor costs the same as a good team of two horses, and will do the same amount of work. It will pull a single plow, and cultivates one or two rows at one operation. Its drawbar pull is sufficient to operate small harvesting machinery, and when belted up to power-driven machines in the home and in the outbuildings will do more than horses can be expected to do. Its uses are practically the same as those of a strong two-horse team, and will give the same degree of profitable satisfaction as that number of horses.

A larger type of farm tractor is adaptable for the place which requires from four to five horses to do the work when all are employed in a single operation. It is recommended to pull two plows of 14 inch bottoms each—the gang plow which large farmers use. It will easily cultivate two rows at one operation, and continue cultivation as long as it is needed. Heavy power-driven machinery can be operated by the pulley, and as a road tractor, pulling two or three trailers, or wagons, it gives excellent service.

Many other tractors are manufactured for large farm use, but as most of these are not adaptable for cultivation purposes none of them will be described.

Tractors are as well made as automobiles, and are as little liable to disabilities as the motor car. They are fairly "foolproof," and in the hands of a person with average mechanical ability will give good service at moderate cost.

The man with little or no love for machinery should not be given charge of a tractor.

There are certain things which the tractor operator must learn and observe. It will not operate without fuel, lubricating oil, and water in the cooling system. In all respects it is practically the same as an automobile. To be kept in good condition it must be given average mechanical care and attention. Being mechanical it will wear out, and the wear will depend largely upon the care and skill of the operator. Fortunately for the readers who may purchase tractors, there are but few suitable for their purposes, and these are all manufactured by reputable concerns.

In contemplating the purchase of a tractor to replace or relieve horses, it would be well to compute the cost of the tractor and its operations, and compare with the cost and keep of horses to be replaced.

The tractor requires no feed nor attention while idle. It can be operated 18 or 20 hours in 24 if required. No rest is necessary after it has been in the field a few hours. In the hottest sun it goes about its work without danger of being overcome with heat. It is ready to start at command, without having to be fed and curried. It requires no more time to attach an implement to it than it does to harness a horse. It may "take sick" and so may the horse. At such times the expense of an expert is no greater than that of a veterinary.

The fact that one does not have to maintain a number of acres to provide food for the tractor while it is in use, or idle, is a good argument in its favor. Its "feed" can be purchased from a tank wagon, or in barrels from the nearest oil dealer, and it never requires a change of food stuff.

On the other hand, the tractor produces no progeny; nor will it respond with loving notice to a caress from its owner or the women. It is a machine, dumb and without life except that which its operator puts into it. It will intelligently obey every command when properly cared for and operated, and will stand at attention where it is left until its owner requires it to go again.

In closing it might be well to remind the reader that the tractor is not a dream but an actuality. It has been thoroughly tested and tried and found not wanting. It is endorsed and recommended by agricultural experts, state boards of agriculture, and users themselves. It is a practical machine, and under most conditions has proven profitable and a

wise investment. To some it will prove disappointing, and its advantages and disadvantages should be well weighed before the check is passed over for payment. If a tractor is bought, be certain that it is put to work doing everything that it is made to do.

The cost of small tractors, such as have been described in the foregoing, have been calculated at the price of good, sound horses which they are intended to replace. Equipment is additional, as it would be if horsepower is employed.

The Beeman garden tractor, smallest of all the power appliances, sells at \$150, f. o. b. factory. It develops 4.9 horsepower at the belt, and about 2.5 at the draw bar. Attachments, such as cultivators, weeder and turning shares to equip the tractor will cost about \$25 aggregate. The company issues a circular telling of attachments which can be used in connection with the machine.

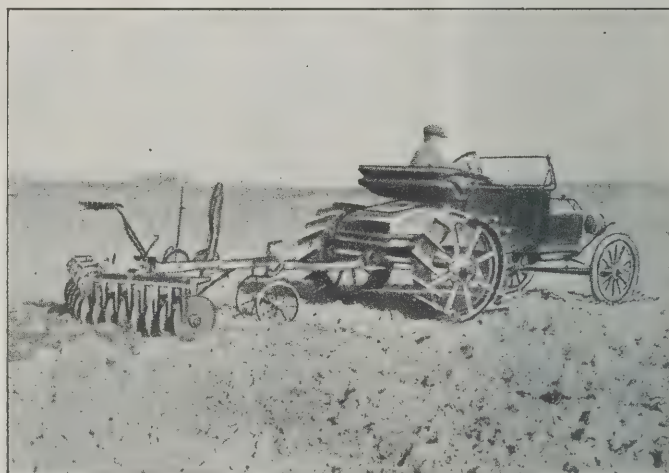
The Avery motor cultivator was and is intended primarily for cultivating large fields of corn, potatoes, and other crops which are planted in rows or drills. It has been found adaptable to operating planters of both the corn, cotton, and combined corn and cotton types. This tractor is not built for plowing, and is not furnished by the company for that purpose. The writer believes that it can be used for plowing gardens, with a hitch which will operate a sulky plow, although I do not have permission from the manufacturers to so assure your readers.

This motor cultivator will successfully operate a small harrow, and ought to do much of the work of the gardener. It sells for \$400, equipped with eight or twelve shovel gangs. Next season it will be equipped with disc gangs also gangs for cultivating listed corn, and a planter attachment. All other tools which the user may wish to operate as his experiences will teach him he can, must be purchased separately.

The Universal tractor is a real farm tractor in every way. Its cost is \$850 complete with plowing outfit of two 14-inch bottoms. It is a powerful machine, and besides doing everything possible for a tractor to do on a farm of 100 or even more acres it will supply belt power which will enable it to replace a ten or twelve horse portable gasoline engine. This tractor has never been recommended for gardens, but if the fields are sufficiently large so that it requires six or eight horses to properly care for them, it will be found profitable.



Gasoline driven machines are available for planting and cultivating corn as well as other crops



By applying the special set of wheels the small automobile is converted into a practical tractor

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Scores of letters like these:

From Beverly, Mass.—“Last season I purchased a few roots from —, from —, and from —; varieties which you do not list, and for all their talk of size and vigor of plants, they did not compare in either case with the roots you have supplied me with for several years.”

From St. Louis, Mo.—“The Peonies have just been received. The enormous size of your roots has agreeably surprised me. Last year I bought some roots from —. One was for immediate effect at double price, and only one (not the extra sized one) bloomed. Without exaggeration I can say, that your roots are from three to six times as big and vigorous.”

From Luverne, Minn.—“Your roots are just bursting with healthy plant life, and if they are ‘one-year-olds,’ they must have failed to take account of their second and third birthdays. The amount of fibrous roots in these clumps is just simply wonderful. As specialists in your line you seem to be, and I believe you really are, in a class by yourselves, producing Peony roots that are unequalled in the United States.”

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Suspensions of the other reasons will be awakened by our catalogue. Instant confirmation of them if you could visit our grounds and see the plants growing—the stock we send to you. Ask those who have been here.

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Goos & Koenemann Irises

far surpass the old-fashioned “Flags” in both size and brilliancy of colors, besides retaining the delightful fragrance of the parents. They are as hardy as oaks and increase in size and beauty from year to year. To popularize these wonderful new creations of the plant breeder's art, we will ship

5 Leaders for \$1

Iris King—Lemon-yellow standards, falls deep satiny brown with broad margin of golden yellow.

Rhein Nixe—Pure white standards, falls deep violet-blue with narrow white margin.

Caprice—Solid violet blue.

Isolene—Pale lavender standards, falls light purple, overlaid with brown, beard—yellow.

Tamerlane—Light blue standards, falls deep purple.

Prices, any of above, each 25c; \$2.50 per dozen

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Painesville Ohio

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Write for Catalogue N may be set in September. Peonias in last of August.
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You can begin setting hardy plants in August. The earlier kinds will have time to get established before winter. Don't put off planting, but send at once for Horstford's Spring Catalogue and Autumn Supplement of bulbs for fall setting. Many of the wild flowers such as Trilliums, Dog's Tooth Violets, Lilies and other Violets.

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Also Bird Baths, Garden Benches, Fountain Sprays and other garden requisites.

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Send for illustrated Price-List



Evergreen Trees and Evergreen Shrubs for August Planting

ALONG your foundations. In your veranda corners. Out on your grounds. Wherever sure results are absolutely essential, plant Bay State evergreen trees and shrubs.

They will insure you of sure results because of their backbone.

Backbone developed by our severe New

England Winter. Backbone that gives them the stamina to stand transplanting and thrive satisfactorily practically anywhere. Backbone that enables them to scoff at Winter's winds and frigidness. If this backbone kind of stock appeals to you, send for catalogue and claim a share of it for your own!

The Bay State Nurseries
672 Adams Street
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The fibrous vigor-giving rootlets of Bay State stock, are a big backbone-factor.



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Five New Kinds of Rare Beauty

Isoline (Squalens)

Standards, soft pink; Falls, deep old-rose, yellow throated; very large and striking flower. Award of Merit, London. **\$1.25 each.**

Lohengrin (Pallida)

Standards and Falls, in shades of Cattleya-Mauve; petals translucent and very responsive to strength or softness of the light. 3 ft. Award of Merit, London, 1915.—**\$1.00 each.**

Mrs. Alan Gray

(Cengiali X Queen of May)

Standards and Falls, soft lilac; one of the most beautiful; unique in usually blooming again in late July and August. 2½ ft. **\$1.00.**

Rhein Nixe (Amoena)

Standards clear white; Falls rich raspberry purple with distinct white edge. Tall, vigorous branched spikes; 3½ ft. Award of Merit, London, 1915. **50c each.**

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Standards pale dove gray; Falls deep violet; very large and handsome; 2½ to 3 ft. **\$1.00 each.**

Special Offer

One plant each of the above varieties, delivered to any address in the United States, **\$5** Prepaid, for

Our list of standard varieties while not one of the largest, is the most select in the country. Catalogue containing full descriptions forwarded to any address on receipt of address.

These Iris are sold under our usual guarantee of being absolutely true to name or replaced free of charge

Charles H. Totty

"The Novelty Man"

Madison

New Jersey

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in August

(Following dates are meetings unless otherwise specified)

- Minnesota Garden Flower Society at Como Park, St. Paul, by announcement.
2. Marshfield, Mass., Garden Club.
Garden Club of Lawrence, Lawrence, L. I. Subject: Sweet Peas and Lilies.
3. Pasadena, Cal., Horticultural Society.
4. New York Botanical Garden, Bronx Park, N. Y.,
Lecture: Floral and Scenic Features of Cuba.
6. Lenox, Mass., Garden Club.
- New Bedford, Mass., Horticultural Society.
7. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Pleasantville, N. Y.
8. Short Hills, N. J., Garden Club.
- Lenox, Mass., Horticultural Society.
- Nassau Co. Horticultural Society, Glen Cove, L. I.
10. Westchester N. Y. & Fairfield Conn. Horticultural Society.
11. New York Botanical Garden, Bronx Park, N. Y.
Lecture: Books on Gardening.
- Dobbs Ferry, N. Y., Horticultural Society.
- 11-12. Massachusetts Horticultural Society, Boston,
Mass. Gladiolus and Phlox Exhibition.
13. Park Garden Club, Flushing, L. I.
- Rochester, N. Y., Florist Association.
- New Rochelle, N. Y., Garden Club.
- New York Florists' Club, New York City, N. Y.
16. Marshfield, Mass., Garden Club.
17. Pasadena, Cal., Horticultural Society.
- California Dahlia Society, San Francisco, Cal.
18. New York Botanical Garden, Bronx Park, N. Y.
Lecture: Trees and Flowers of the Yellowstone National Park.
20. Lenox, Mass., Garden Club.
- 21-23. Thirty-third Annual Convention and Trade
Exhibition of the Society of American Florists.
Grand Central Palace, and Botanical Garden,
N. Y.
- 23-26. American Gladiolus Society, Syracuse, N. Y.
Annual Meeting and Exhibition.
Horticultural Society of New York, New York
City, N. Y. Exhibition and Lecture.
New York Botanical Garden, Bronx Park, N. Y.
Exhibition of Gladioli.
25. Dobbs Ferry, N. Y., Horticultural Society.
New York Botanical Garden, Bronx Park, N. Y.
Lecture: Insect Enemies of Plants.
27. Park Garden Club, Flushing, L. I.

Great Horticultural Meeting in New York

THIS year sees the Thirty-third Annual Convention and Trade Exhibition of the Society of American Florists in New York. There are two phases of attraction to the public: The regular trade exhibit which will be held in the Grand Central Palace, New York City, August 21st to 23rd, where also the principle sessions of the Society will take place. Simultaneously there will be the Convention Garden for which purpose the attractive location has been accorded by the Director of the New York Botanical Garden in Bronx Park. The display here consists of exhibits of growing plants established well in advance of the Convention and which form a more or less permanent display.

The accompanying map shows definitely the location of the various exhibits, and by reference to the key numbers the visitor can readily ascertain the nature of the various displays. In conjunction with this organization there are also meetings of various affiliated associations, and in particular the Annual Meeting and Exhibition of the American Gladiolus Society, when the exceptionally valuable prize list is offered in this division.

The garden lovers visiting New York during the period of the Convention will be amply repaid by a visit to the Convention Garden as

they will there see a demonstration in growing specimens naturally planted of many of the novelties of plants and flowers in season.

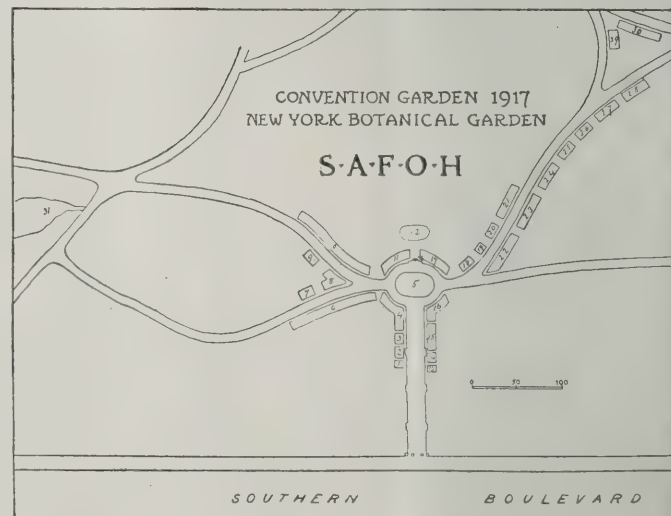
Further particulars concerning the National organization can be obtained from John Young, Secretary, 53 West 28th Street; in connection with the Gladiolus Exhibit from Henry Youell, Cedar Street, Syracuse, Secretary of the American Gladiolus Society.

A map of the Convention Garden is given herewith, the number references to the exhibits being as follows: 1, B. Hammond Tracy, Gladiolus—2, Vaughan's Seed Store, Gladiolus—3, B. Hammond Tracy, Gladiolus—4, John Lewis Childs, Gladiolus—5, Conard & Jones Co., Cannas—6, A. N. Pierson, Inc., Phloxes—7, 8, 9, do., Roses—10, do., Phloxes—11, Arthur T. Boddington, Cannas—12, Vaughan's Seed Store, Cannas—13, B. Hammond Tracy, Gladiolus—14, Vaughan's Seed Store, Gladiolus—15, B. Hammond Tracy, Gladiolus—16, Arthur Cowee, Gladiolus—17, Arthur T. Boddington, Cannas—18, John Lewis Childs, Lycoris squamigera—19, Raymond W. Swett, new seedling Dahlias—20, American Bulb Co., Cannas—21 to 27, Vaughan's Seed Store, Cannas—28, W. A. Manda, miscellaneous plants—29, Thos. Meehan & Sons, Mallows—30, Bobbink & Atkins, Mallows—31, Wm. Tricker, Aquatics.

Rose Garden for Portland, Ore.

A GROUP of people representing ninety-nine different organizations of the city, including the Royal Rosarians, the Portland Rose Society, the Portland Chamber of Commerce, the Portland Floral Society, The Rotary Club, the Research Club, the American Institute of Architects, the Parents' and Teachers' Association, met January 11 and organized a Portland Association National Rose Test Garden. The cooperation of the city government comes through its Park Department.

The Rose Test Garden is part of the propaganda of the American Rose Society and at a



meeting on February 8th it was officially accepted as the test garden for the Pacific Northwest and with the local organization appointed Mr. Currey, Mr. Clark, and Mr. Tucker, which committee together with the Portland Association and the City Government of Portland will formulate plans for the location and government of the garden and provide rules and regulations for all tests and contests.



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Hardy Guaranteed Trees and Plants

We guarantee our trees to make the growth the planter has the right to expect. This means: You plant our trees properly, give them due care and attention, and then if any of them fail to grow as you have reason to expect, we will replace them without charge. You are the judge of what you should expect.

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latest com-
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SHADE AND PRIVACY Around Your Home

There is no need that you should, for one single day, be without the comforting screen of big evergreens! Twenty years ago we decided to eliminate the waiting phase from home landscape making. With the help of Hicks Big Trees you can enjoy the blue sky, the white clouds and the cool breezes around your home this summer without being disturbed by sights, sounds and the dust of every passing automobile or by adjacent buildings.

Side Walls Suburban places of Europe are surrounded by high brick walls. We can give you walls that cost less and are more beautiful, a wall of fragrant Firs, Pines or other Evergreens. August is a good time to plant them. You can get the best selection of trees and you can arrange them while you are on your country place, while your gardener is not as busy as in the spring. Make the sidewall of your outdoor room an Evergreen Boundary. 6 to 16 feet tall.



Your family can have an evergreen boundary now

Our representative will call, help solve your tree problems and stake out your ground according to your ideas. Evergreens of the kind we offer may be shipped safely a thousand miles. Our stocks embrace all sizes. It took us twenty years to get them in shape for you.

Satisfactory growth is guaranteed, since our trees have been so thoroughly prepared that records show almost no loss, making free replacing necessary.

Write for free book,
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Summer Planting"

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Big Shade Trees

We will deliver and plant, within fifty miles of New York and anywhere on Long Island with the guarantee that they will grow satisfactorily, 2 Silver Lindens, 18 ft. tall and 2 Norway Maples, 20 ft. tall, all 8 ft. broad trees, 15 years old, that we will move in full leaf for \$50. You may pick them out yourself.

Because Hicks' Nurseries are famous for Big Trees do not think that is all we grow. We grow thousands of all sizes, from root up. Learn to look upon Hicks' Nurseries as your Plant and Tree Department Store. Complete nursery catalogue on request. Write us TO-DAY.

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Book on request giving instructions as to the proper method of growing roses.

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Callahan CUT-TO-FIT Greenhouses

At Low
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They solve the question for the man who knows the advantages of under glass growing. In any size needed. Low freight classification helps keep the price down. Callahan Sectional Greenhouses for your home may be erected by any handy man. Tell us your needs. We have a house for any grower, professional or amateur. Write for particulars.

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Hardy Plants rule supreme with us. Because we cannot grow them all, we only grow those most dependable under all conditions of soil and climate. We endeavor to offer the newest and choicest of the dependable standards and every plant we sell is guaranteed true-to-name. Our greatest hobby is

Primroses to Plant this Fall for Spring Bloom

Among the rarer sorts, the following are particularly charming and suitable for immediate planting:—

Beesiana, purple with yellow eye, 75c. each.
Bulleyana, golden yellow, shaded orange, 50c.
Capitata, violet blue, dusted white, 50c.
Denticulata, very large lilac, 50c.
"Red Hugh", exceedingly choice, fiery scarlet, \$1.
"Mrs. Berkeley", pale blush with saffron eye, 75c.

Special Offer: We will send one strong plant of each of the above selected sorts for \$3.

A Booklet It is a very modest free booklet, but full of facts about our "pets," the choicest hardy plants the world affords. Grown under ideal, yet exacting conditions by people who love plants, Wolcott's Hardy Plants are different from the commercial product. Let our booklet and plants convert you into a hardy plant enthusiast. Write TO-DAY.

Wolcott Nurseries Jackson, Mich.

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IRON FENCE protects lawns and flowers, increases property values, compels cleanliness. It keeps children safe from automobile speed maniacs and protects careful drivers from careless children. There are many imperative reasons why you need

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The Stewart Iron Works Company, Inc.
655 Stewart Block CINCINNATI, OHIO
"The World's Greatest Iron Fence Builders"

Old-Time Southern Recipes

J. M. PATTERSON

THE work of food production still goes on, and this month every one should be busy preparing for their winter gardens, but there is much to be done for the preservation of food.

Because of the difficulty of getting the tin and glass containers other methods have been devised for the preservation of food and the Government had recently issued a bulletin on the subject of drying food stuffs. But our mothers and grandmothers had devised means for the preservation of food, and we are turning to them in our dilemma and are bringing to light a number of good old-time receipts.

Therefore if the tin cans and glass jars are reserved for the succulent vegetables, the others can be conserved by drying and may be packed in earthen jars or in tin or paste-board boxes lined with oil paper.

Dried Fruit

Begin drying fruits just as soon as the seed matures, or as soon as the fruit is two-thirds ripe, and continue as long as you can handle it without mashing to a pulp.

Caution—In drying either fruits or vegetables in the sun, screen wire or mosquito netting should be stretched over a suitable frame to keep out the flies and other insects; and everything, of course, must be scrupulously clean if a superior flavored, healthy and wholesome product is desired.

Dried Cherries. Stone the cherries and spread on dishes Put them in the hot sun. (Look after them occasionally for fear of worms having been in some of the cherries. To safeguard against this put them in a hot oven for five or ten minutes.) (When dried sprinkle sugar on them and pack in stone jars.)

Peach Chips. Peel and slice peaches thin, boil them until clear in a syrup made with half their weight in sugar, lay them on dishes in the sun and turn them until dry. Pack them in earthen jars or tin boxes or cans with powdered sugar sifted over each layer. Should there be syrup left, continue the process with other peaches. They are very nice when cooked with pure honey instead of sugar.

There is an excellent old time receipt for the preservation of tomatoes called Tomato Paste.

Tomato Paste. Take perfectly sound and ripe tomatoes, scald and take off skins; put them in a colander to drain and pour off the thin liquor that drains from them. Press the tomatoes through a sieve. Put in a kettle and boil slowly until reduced to thick pulp. Spread this on large bread pans and either dry out in the oven or in a modern evaporator or in the sun until it is a stiff paste. In the latter case, be careful to cover all with cheese cloth or fine wire netting to keep out insects. This can be rolled in a sheet or cut in squares and kept in earthen jars, the tops tied over with a cloth, or in close tin boxes and cans lined with oil paper. If preferred the paste need not be dried, but can be put in wide mouthed bottles, after being boiled down thick, and sealed while hot.

This paste can be used in the winter for a number of things: by adding water, as seasonings for soup, or with bread crumbs for a baked dish, and as a basis for sauces.

Fruit Leather made of any kind of fruit is not only a delicious confection, but does not require sugar except in the case of very sour fruit, and if soaked in water several hours and cooked a few minutes can be eaten with cream or made into various desserts.

Strawberry Leather. Take thoroughly ripe strawberries, mash to a pulp, spread on platters and dry in the sun or oven; when dry, dust with powdered sugar and roll up like a jelly cake, cut into suitable sized pieces and pack away in jars. This may be eaten as a confection or soaked in water and used for pies, short cake, sauce, tarts, etc., etc. The powdered sugar is a matter of taste and may be left out if desired.

To dry strawberries put the berries in a moderate oven, heat through thoroughly, but not enough to become soft and juicy, spread out in the sun or finish in the oven. Treat blackberries and dewberries exactly the same as recommended for strawberries. If a seedless roll is desired, this may be done by pressing the pulp through a fine sieve before drying.

Peaches, Pears, Apples, Plums, and Quinces or any fruit can be made into leather in the above manner and either rolled in sugar or cut in squares and put away in tin boxes or cans which are lined with oil paper.

Next month we will continue the subject

Protect the Growing Things

Now, while they are at their best, is the time to give them the necessary protection that preserves their beauty and lengthens their life. Guard them with

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RUST PROOF**

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this fall, and you will have vigorous clumps and strong blooms next summer. Our beautiful collection is one of the largest in America and comprises over 150 varieties. Send for catalogue.

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**Davey
Tree Surgeons**

Potted Strawberry Plants



DREER'S Mid-Summer Catalogue

offers the best varieties and gives directions for planting in order to raise a full crop of Strawberries next year; also offers Celery and Cabbage Plants, Seasonable, Vegetable, Flower and Farm Seeds for summer sowing, Potted Plants of Roses, Hardy Perennials, and Shrubbery which may safely be set out during the summer; also a select list of seasonable Decorative Plants.

Write for a free copy and kindly mention this publication

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Philadelphia, Pa.

DUTCH BULBS are coming!

The Quality of "Diamond Brand" Bulbs of 1917 crop promises to be superlative! We are not so sure about the Quantity, but hope enough will reach us to go around.

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Simple, compact and effective "rain-makers" that do good work under all conditions. Let them help you make your gardens bountiful and your lawns beautiful.

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There are four types, each made in several sizes. \$6.85 will buy a perfect "Border Mist" Junior Sprinkler. A "Garden Rain" Machine at \$15.75 provides as complete an outfit as one may wish. We guarantee every sprinkler. Write for descriptive folder—free.

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3 to 4 feet tall, each \$2.50; \$17.50 for 10

All symmetrical specimens, carefully dug and packed with large ball of earth. Safe arrival in good growing condition guaranteed.

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For exposed hillsides or slopes, few evergreens equal Austrian Pine (shown alongside) in usefulness. Very beautiful when adorned with new growth. Scotch Pines are even more rapid growers than Austrian Pine, equally hardy and ornamental.

Besides treatise mentioned above, our free catalogue is at your disposal. It presents the cumulative experience of over a century in the nursery business. Describes as complete and perfect a stock of evergreens as ever grew in 800 acre nurseries. Please ask for it.

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OUR PLANTS give a crop of finest berries in two to ten months from planting—the Everbearing varieties in two months; the others the following June. A full list of the best varieties, including the remarkable Van Fleet Hybrids, covering the whole season from earliest to latest.

Our booklet No. 2 of Pot-Grown Strawberries tells all about them; how to prepare the ground and cultivate. IT IS FREE. If you would have bigger and better strawberries than your neighbors or you have ever had before, plant LOVETT'S POT-GROWN STRAWBERRY PLANTS.

Strawberry Specialists
for thirty-nine years.

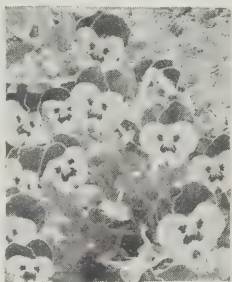
J. T. LOVETT, Box 125, Little Silver, N. J.

Stumpp & Walter Co's Timely Topics

Let us turn, for the moment, to that side of gardening appealing to the mind rather than to the more material senses. The response to our previous appeals for more and bigger and better vegetable gardens has been gratifying. But, so long as there are gardens, so long will we have flower beds that help brighten the world and cheer our lives. So, this month, let us call attention to

Flower Seeds for Present Planting

August is the month of the year to start Perennials from seeds. Perennials are those flowers that are perfectly hardy and come again year after year. You will find two pages full of them described in our Mid-Summer Catalogue, offered free below.



S. & W. Co's. Giant Pansies

Sown during August, will live through the winter with but slight protection. Wintered over in a cold frame they will begin to bloom early in March. Outdoors in beds, they begin to favor us with glorious flowers, 2 1/2 to 3 inches in diameter, from early in May until real hot weather. Try these:

Giant Winter Mixed, for early flowers in frames. Pkt. 25c.

World's Best Mixture, finest we know. Pkt. 25c.

Masterpiece, grand strain with frilled flowers. Pkt. 25c.

Bulbs to Plant NOW!

For August planting in pots, for house culture and Christmas flowers, try:

Freesia, *Purity*, the delightfully fragrant favorite, mammoth size, Doz. 60c.; \$3.50 per 100. Plant six to twelve bulbs in a 6 inch pan.

Roman Hyacinths, the earliest of all to bloom and easiest to grow. White. \$1.25 per doz., \$8.00 per 100.

Narcissus, *Giant Paper-White*, fine for growing in water, with pebbles to support bulbs. **Large Bulbs**, 5c. each; 50c. per doz.; \$2.75 per 100. **Jumbo Bulbs**, 10c. each; 75c. per doz., \$3.50 per 100.

For planting direct into the garden:

Madonna Lilies (*Lilium candidum*), choice, northern grown bulbs, sure to thrive and hardy as oaks, mammoth bulbs, 15c. each; \$1.50 per doz., \$10.00 per 100. All prices postpaid.

Seasonable Suggestions for the Vegetable Garden

August brings the eleventh hour opportunity to provide root crops for winter storage. Extra Early Sorts of *Beets*, *Carrots*, *Kohlrabi* and *Turnips* will still reach good size from seeds before frost injures them. Our stock of all of them is complete. We also offer late *Cabbage*, *Cauliflower* and *Celery Plants*. By setting out S. & W. Co's sturdy potgrown strawberry plants this month, you gain a year's time. To familiarize yourself with August garden possibilities, write to-day for our

FREE Midsummer Catalogue

Interesting, instructive, practical. Tells what to plant at this time of the year and how to do it. Offers timely accessories and implements which the home gardener needs most right now. We also have ready for mailing our new "Advance Bulb Catalogue" of *Dutch*, *French*, *Japanese* and *American* grown Bulbs. Write for both books to-day or just say "put my name on your mailing list." We will understand.

Stumpp & Walter Co. 30-32 Barclay Street
NEW YORK



Spraying Kills Young Squash Bugs

THE common squash bug, sometimes called the black squash bug to distinguish it from the striped squash or melon bug, is a serious pest in gardens at times. A farmer recently related to me his experiences in attempting to grow not only squashes but melons and other cucurbits. He claimed that these bugs utterly destroyed his crop for him so that after several attempts he had given up growing these particular vegetables.

The squash bug is a menace from the time the plant appears above ground until the crop is harvested. The newly started plant is attacked by the adults which have wintered over. The damage done by the squash bug is this: they are sucking insects extracting the plants' juices for subsistence, and wherever the bug punctures a leaf to feed, it injects a little fluid supposed to be saliva which is poisonous to the plant, killing the leaf about the puncture. For this reason it is more serious on young plants than on old ones because of the fewer leaves. It is not uncommon to find young plants killed by a few punctures.

The squash bug is a hard insect to fight. Poisons will not do the work because it does not chew. The adult beetles are almost impossible to reach by spraying, handpicking and trapping them being about the only methods of destroying them. I have always managed to prevent serious damage by laying shingles about the garden where the squash bug is working. They will gather on the under side, particularly on cool fall nights, and if the garden is visited early in the morning they can be scraped off into a pail having kerosene in it. Destroying vines after the fruit is gathered is also a very material help in keeping down the pest.

The young can be killed by spraying the vines with kerosene emulsion, diluting the stock solution with eight to ten parts of water. The time when the young are present varies with the latitude. The adult appears in this latitude late in June and commences to lay eggs very shortly. It takes the eggs from eight to thirteen days to hatch, so that the young appear early in July. As soon as they appear spraying should be resorted to.

Where this squash bug bothers melons or cucumbers, a trap crop of early squashes planted alongside of the melons will prove far more attractive to the bug, so that little or no damage is done to the melons.

Repellants are sometimes used and with success. Land plaster or gypsum saturated with kerosene or turpentine makes a combination that the squash bug does not care to associate with.

Penna.

H. CLARKE.

WHERE radishes, mustard, cress, cabbage, or other plants of the mustard family have been growing early in the season or last season use carrots, beets, celery, or some other crop of a different plant family. The mustard family is subject to a disease called club which lives in the soil and often does serious damage when plants of the family follow each other closely.

"How to Grow Roses"

A delightful handbook for rose lovers. Tells how to plant, prune, spray, etc. Editor Barron of the *Garden Magazine*, says: "The book is a very thorough round-up of what the amateur wants to know about roses." Library edition, 121 pages—16 in natural colors.

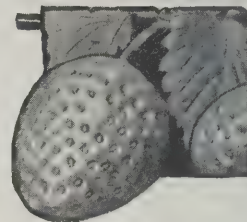
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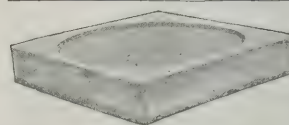
Just a little "patch" will yield these luscious berries all summer

Strawberry plants set out this summer will bear abundantly next year. Complete cultural directions are given in our

Midsummer Garden Guide

—also valuable information about Seasonable Seeds, Bulbs for fall planting, insecticides, implements etc. Write for a copy, to-day

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fifteen inches square, three inches thick, hollowed out round two and one half inches deep in centre sloping

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whether you plant this fall or next spring!

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Besides native plants, we grow and catalogue all the best ornamentals for the Northwest, including trees, shrubs, evergreens and hardy flowers. Either catalogue free.

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7' long x 5' high	\$3.75
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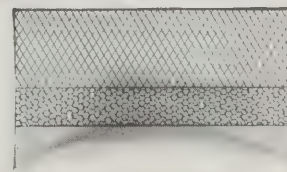
These prices effective April 1st, 1917. F.O.B. Buffalo and are for orders consisting of six sections or more.

Sizes mentioned above can be shipped from stock immediately. Special sizes made to order on short notice.

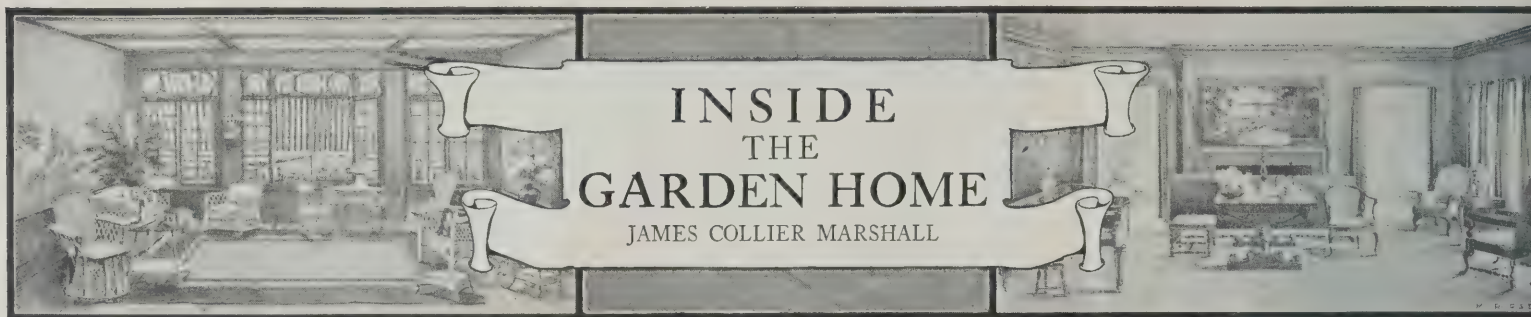
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ENLARGED VIEW



CONVENIENCES FOR THE COTTAGE

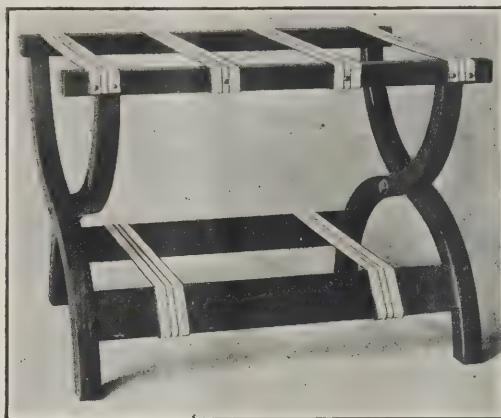
Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

IT IS easy enough to furnish a large house if the wherewithall to do it is available, but it is no mean task to outfit a cottage successfully when one must take into consideration limited space as well as cost of each piece.

This was borne in on me forcefully not long since when a reader asked me to tell where might be had a table with a lid-covered drawer for letter writing, such as are found in most hotel bedrooms. Wrote my inquirer: "I have a tiny house with only one guest room furnished I think satisfactorily, though I want to add a table of the sort that may be both centre table and writing desk, yet of the smallest size and simplest appearance. My guests shall be comfortably though simply served."

My search for this table led me through all the shops to the manufacturer's showrooms until I found what I wanted, and it occurred to me that we frequently overlook the comfort of our guests in outfitting our houses in simple ways that are easy to rectify. For instance, whether the house be large or small, rarely does one find a trunk or suitcase rack in his room. There is nothing that gives such satisfaction in either unpacking or packing one's belongings as to be able to get at the bag comfortably.

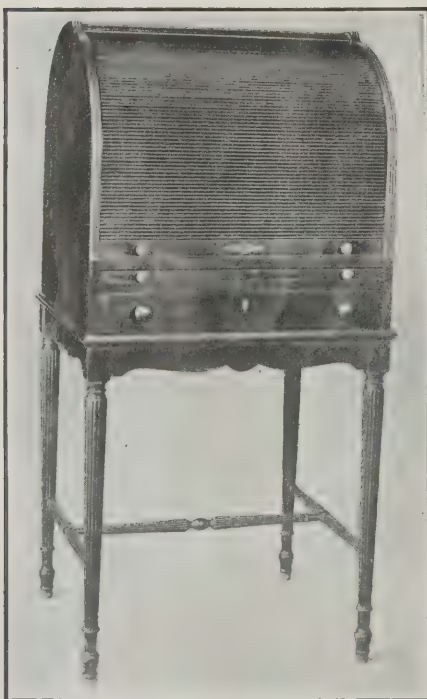
Every one knows the alternatives—using the bed and soiling the spread, a chair—and defacing it, the floor and ruining one's disposition! The worst of it all is when a rack is found it is invariably rickety. However,



Your guests will appreciate this mahogany trunk and suitcase stand. It costs only \$8.50

A good many wooden tables have been put on market with flower boxes arranged in the ends but have always seemed incongruous. The wicker reproduced here, the first of its kind to be so built, has no such unpleasant impression. Indeed, quite the opposite may be said of it, since its lines are not marred by the floral insets but improved thereby. Exceptionally well built, its proportions are correct every inch being well accounted for. It is notable being equally serviceable for use in the centre of a room or at its side, and while it was designed for a summer porch, it might in perfect taste be employed inside the house the whole year through.

Apropos of tables and their dressings, I am reminded that the old time vogue, a custom that has never been in England, of placing jars of fragrant salts on tables in the living rooms of the house to freshen the air has come again into favor. These may be either plain or cut glass or crystal filled with gaily tinted salts or after the newer fashion, the jars and bottles may be decorated and the salts tinted to match the decoration. The idea is as gay as the salts are refreshing and the vogue promises to become a sensible custom. Anent fresh scents, let me tell also that the well known hostess has a maid who comes through her drawing rooms just before the guests arrive a dish of burning lavender which gives off a faint but delicious fragrance that lasts all evening. This custom of perfuming the house artificially is as old as the hills, and one that loses nothing through



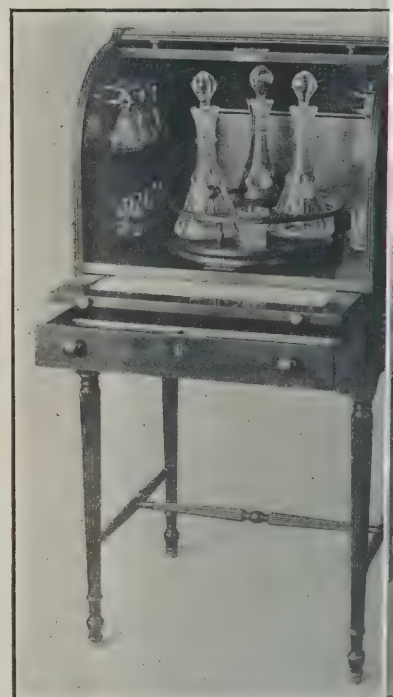
Note the dignity and dainty lines of this mahogany cellaret which adapt it to any setting



The fine proportions, simple lines and wisely conserved space recommend this table highly

the one pictured here is a fine exception, being excellently made and good looking enough to suit any setting, folding easily into a limited place in the closet when not in use.

Another interesting, if not altogether necessary, piece of furniture is the circumspect looking cellaret shown here whose nice proportions and dainty lines when closed in no manner prepare one for its very complete outfitting. As will be seen the roll top conceals three decanters on a revolving stand as well as six wine and six toddy glasses. There is room also for a cocktail shaker, the preparation of which appetizing drink is conducted on the porcelain topped slide seen below. The drawer is arranged with compartments for cards, score pads, poker chips and other first aids to these amusements. This is a most satisfactory article of furniture for the household that boasts no cellar, the summer cottage, or for a bachelor's rooms.



Its reserved manner gives place to hospitality when the top of the cellaret is rolled back

FALL PLANTING for the SPRING DRIVE

The GARDEN MAGAZINE

September
1917

Price
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"Training the Recruit"

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Ferns for Ground Covers

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About Rock Gardens

The Rockery idea in gardening is rising rapidly in popular favor. Those who love the dainty fern and many other attractive forms of plant life found in the rock garden, will find me well stocked with plants for rockeries of all descriptions.

The Lure of New England's Hardy Orchids

To many readers of The Garden Magazine Hardy Orchids will sound like a paradox. Orchids generally awaken thoughts of greenhouses and conservatories, of prices for the flowers that are beyond the reach of the average. And yet, there *are* Orchids that are so hardy that they live outdoors through the most severe New England winters. Year after year they delight us with their quaint and curious flowers. The lovely Lady's Slippers or Moccasin Flowers, the Orchis, Ladies' Tresses and Rattlesnake Plantain, how they please us by their faithful coming again and blooming.

For years *hardy* orchids have been my hobby. First I collected them because I loved them. Later I grew them to sell again, to get others to understand them as I do. After all these years, my favorites are still

The Lady's Slippers

Their botanical name—*Cypripedium*—is their worst handicap. *Cypripedium acaule* is often called the Red Lady's Slipper, but the flowers are really rose-purple, as shown above. It thrives in any well-drained, light weight soil. I grow it in a mixture composed of three parts sand and two parts leafmold. See prices alongside.

C. parviflorum or Small Yellow Lady's Slipper is particularly charming growing in masses, in shady positions, left undisturbed for years. 20c. each; \$2.00 per dozen; \$10.00 per hundred.

C. pubescens or Large Yellow Lady's Slipper needs ample moisture, a shady spot, but it prefers well-drained soil composed largely of humus and leaf-mold. 20c. each; \$2.00 per dozen; \$10.00 per hundred.

C. spectabile, the Showy Lady's Slipper is the finest and most showy of all. I grow it to perfection in pure sphagnum moss, spread 4 to 5 inches deep on top of ground where there is constantly much moisture. 25c. each; \$2.50 per dozen; \$15.00 per hundred.

The Picture Above

shows *Cypripedium acaule* thriving to perfection in its native haunts. Well-mulched with a thick layer of pine needles, it is a subject of unlimited beauty and wide usefulness. One-crown plants 20c. each; \$2.00 per dozen; \$10.00 per hundred. Two-crown plants 30c. each; \$3.00 per dozen; \$15.00 per hundred. Single and dozen lots postpaid. In 100 lots by express only. Plant this fall.

Wild Flowers, the Woodland's Charm

Do you recall the "posies" of childhood days when, as a youngster, you used to ramble through the woods in search of things that appealed to the childish imagination? Do you remember the Bloodroot and Dogtooth violets, the Snakeroots, Trilliums and Hepaticas? In common with many, I, too, fell in love with these fascinating children of the wild flora. Now, as a full-grown man, I grow them *by the thousands* so that their charms

may be enjoyed by others sharing my sentiments. I have kinds for all soils, for sunny or shady places, for wet or dry situations. Write for my catalogue or tell me which most appeal to you among wild flowers. I shall gladly help you in working out any planting ideas you may have.

Fall Planting Insures an Extra Year of Flowers

Nearly all the plants growing in my nursery can be transplanted in the fall with full assurance that they will grow. Plant Trilliums, Lilies, *Cypripediums*, etc., now, so they can start blooming early next spring. Write for my free catalogue describing all and illustrating many of the unusual plants I grow. If you have in mind the planting of a wild or woodland garden, a rockery or any other garden scheme of unusual character, let me send a competent man to confer with you. A post card brings the Catalogue.

EDWARD GILLETT, *Hardy Fern and Wild Flower Specialist*

3 Main Street, Southwick, Mass.

The Garden Magazine

VOLUME XXVI

SEPTEMBER, 1917

NUMBER 2



AMONG OUR GARDEN NEIGHBORS

Wintering Herbaceous Plants.—Since writing the notes about the newer perennials (published in last month's *GARDEN MAGAZINE*) my experience with *Thalictrum dipterocarpum* leads me to believe that to insure its wintering over safely (in this section, at all events) it is necessary to select for it a particularly well drained spot in the border and give it some protection. I think, however, that it is mainly the damp and not the cold that proves fatal to it; plants under sashes have always wintered over perfectly for me, without mats or any other covering, beyond the single thickness of glass.—*Frank M. Thomas, Pennsylvania.*

Peonies that Fit.—I want help! All the Peonies in the lists of the dealers are alike in merit, but I want relative facts about some good varieties to buy at a moderate price, say about \$2 for two-year roots. Please suggest these varieties: (1) a white with as much yellow as possible, (2) a different shade of red than *Felix Crousse*, and (3), a different pink from *M. Jules Elie*.—*E. A. W., Pa.*

—I suggest, for the first, *Solfatare*, or *Duc de Wellington*; for the second, *Adolphe Rousseau*, *Raphael*, *Volcan*, *Mme. Bucquet*, or *Edouard André*; for the third, *Livingstone*, *Albert Crousse*, *Eugénie Verdier*, *Delicatissima*, or *Triomphe de l'Exposition de Lille*.—*A. P. S.*

A Hedge of Lupins.—We have invariably found that the most pleasing effects in and about the garden are the outcome of natural grouping and not the result of studied arrangement. Few spots on our "domain" can rival in attractiveness the one glorified by a big clump of golden *Day Lilies* veiled in a mist of wind-sown white *Columbine*, beneath the drooping branches of an old apple tree; or the tall, glowing "lamps" of *Phlox* against a curtain of wild *Clematis* that sways down from the trees. And so, too, it was almost by chance that our *Lupin* hedge came about.

One spring we had sown a row of them, and when they came up very thickly they were neglected. The following year, they were a mass of enormous clumps far overcrowding the allotted space. A curving piece of turf surrounding a well is separated from the vegetable garden by a row of big red-currant bushes, and the cultivated space intervening between them and the grass plot suggested a border. So one rainy afternoon the *Lupins*

were laboriously dug up, separated into smaller clumps by a process of "short division" and hastily set close together in a line following the curve of the turf. The rain continued to water them, and we gave them no care, or scarcely a thought till they began to bloom. How they flourished! Our hedge was the admiration of all the passers-by, and the spikes

imitation of the other natural one, by starting another hedge of various pink varieties, shading down to a group of white ones.

If some of you find yourselves overburdened with *Lupins*, perhaps you may like to "go and do likewise."—*Charlotte Brassey-Brierley, Maine.*

A Rare Poppywort.—It is customary to dismiss *Meconopsis* from further attention, remarking that our atmosphere is too dry for their family. But under date of August 11, Mr. A. E. Thatcher of Bar Harbor, Me., telegraphed that "*M. integrifolia* opened perfect flowers." This is one of Mr. E. H. Wilson's notable discoveries in herbaceous plants and Mr. Thatcher flowers it for the first time in America. We shall refer to the subject again next month.—*L. B.*

Pansies all the Year in Tennessee.—For three years I have not planted a seed and have *Pansies* every month in the year. About July or August, I allow the seed pods to ripen and sometimes even before, for it seems impossible to keep all the blooms picked. I leave the old plants until they become exhausted. By the time I pull them up, I find under the old plants many young seedlings. If too thick, I transplant. In April, May, and June they are at their height. The bed is a solid mass of blooms. About once a month they are given liquid fertilizer (rather weak) by lifting the stems and pouring on the roots. In that way, the foliage and blooms are not injured. Sometimes in early spring, they are given a little pulverized sheep manure, but use it with care, for it is very strong. In the fall, I mulch with small leaves, such as *Elm* or *Per-simmon*, leaving it on in the spring, so the bed is really covered with leaf mould most of the time, which keeps their roots cool and moist. In December, ten days after zero weather, I gathered a dozen blooms (big heads but short stems), I must add they were under six inches of snow when the zero weather came, so of course were protected. I give water liberally in dry seasons, but they are usually able to stand weather conditions, as well as other flowers. They have only one enemy that I know of and that is the cutworm, but by being an "early bird," I usually catch the worm, for he is not far away and always leaves signs of his work.—*B. N. Tomlinson, Tenn.*

The Neighbors' Present Duty

¶ In reviewing the present situation, so far as it concerns those who have had the privilege of "doing their bit" in increased food crop production, Secretary of Agriculture D. F. Houston says:

¶ "The producers have responded promptly to the appeal issued by the President at the beginning of the war, and Nature has been bountiful. The time has come for us, as consumers and conservers, to do our share.

¶ "Any housewife who desires additional information is urged to get in touch with local organizations or with the local representatives of the Department of Agriculture, the State Agricultural Colleges, or directly with the Department of Agriculture in Washington, which will mail free of charge, on receipt of a post card request, literature covering all phases of canning, drying, preserving, pickling and the home storing of perishable fruits and vegetables.

¶ "By coöperating with the Department at this time, the women of the country can render a definite national service."

of bloom we cut from it were legion—thus increasing the abundance of flowers. They were, for the most part, the shades of blue, with a chance grouping of white at one end which straggled off artistically down the line and was lost among the blue ones. Seen from the street, beyond the fruit-hung currant bushes, with the vivid green of lettuce beneath them, they were most effective. This year we have tried to create as good an effect, in

Chinese Cabbage.—The one difficulty in the growing of pe-tsai or Chinese cabbage is found in its exasperating tendency to go to seed before making heads of edible size. Oftentimes the only way to obtain a good crop is to



Chinese cabbage, pe-tsai, is a useful summer salad

sow the seed as late as early July. Fortunately this vegetable makes rapid growth, but it is desirable for the table in midsummer, when lettuce is not at its best. It has been my experience that there is wide variation in the different strains of Chinese cabbage. That which I planted last year early in the spring gave a summer crop that bothered me but little by seeding. This year's seed from another source was very much less satisfactory. I believe that the way to have pe-tsai when we want it is to save seed from chosen plants which head up well and early and to continue the process of selection until a good strain is obtained. This is an excellent vegetable and rapidly growing in popularity among people who are fond of salad plants. Eaten with sugar like lettuce it is delicious. Some



New hybrid Tree Peony, La Lorraine, which has flowers of rich yellow, maroon red at centre

of the greenhouse men are considering the commercial growing of Chinese cabbage under glass in winter, and last season one of the fancy grocery stores in Boston was selling it until well into the winter.—*E. I. Farrington, Mass.*

Canning Kohl-Rabi.—My experiences in canning kohl-rabi may be of some value now that the cry is "can all you can." I found kohl-rabi a very welcome change from the commoner vegetables during the winter. As an experiment I tried a few cans, using only small "roots," about two and one half inches in diameter. They matured to this size in about eight weeks. If left too long they become hard and stringy. One advantage in growing them for canning is that they may be planted closer because they are picked before they begin to crowd. I plant the seed in drills one foot apart and about four inches apart in the rows. In canning I generally quarter the kohl-rabi, but some of the smallest I put in whole. I place them in a muslin bag in boiling water. After ten minutes I dash them into cold water in order to shrink them. Even the small shrinkage which they undergo helps to make the cans full when the process is finished. Then I fill the cans or jars, packing in the pieces as solidly as possible. A teaspoonful of salt is put on top and hot water poured over it until the can is full, up to half an inch of the top. This both dissolves the salt and distributes it evenly throughout the can or jar. Then the cover is soldered on in the case of the can or the cover of the jar is laid on. The small centre hole of the tin can cap is left open, and the jar tops are only fastened lightly if at all. The cans are placed in the boiler with the water up to an inch of the top on the outside of the jars or cans and they are boiled for two hours. They are then taken out and the small centre hole is sealed and the cans are put back. If working with jars it is best to keep them in the water while clamping down the tight clamp, as a draft of air might crack the glass. The cans and jars are now totally immersed and boiled for two hours more. Then let them cool standing in the boiler as the water cools. I have also canned kohl-rabi and carrots together and found that the peculiar combination of cabbage and turnip taste in the kohl-rabi makes a pleasing addition to the carrot flavor.—*Curtis Fisher Day, Somerville, Mass.*

A Yellow Tree Peony.—The accompanying illustration shows the yellow Tree Peony, La Lorraine, raised by Lemoine from *P. lutea* and *P. Moutan*, and of which a few plants are being grown by two or three prominent Peony growers of America. It was shown in splendid form at the recent exhibition at Philadelphia by Mr. Farr; Mr. Havemeyer has displayed it before the Horticultural Society of New York. The color is rich creamy yellow, with maroon red blotch at the base. Stems strong and woody. Foliage like the ordinary Tree Peony with purple on the midrib and petiole. It flowered for the first time in 1904, and has received numerous awards since—Paris, 1909, Ghent 1913, London 1913. The plant is apparently hardy. Our photograph was made at Rochester, N. Y., in June last.—*L. B.*

A Broomstick Scratcher.—The days of backache are here! The first fine ecstasy of beginning our gardens is over, and now the weeds crop up and the soil bakes and cracks. Any woman who isn't accustomed to using the ordinary garden tools finds them heavy and

cumbersome, and she is hunting for something lighter to break up the crust of the hard baked soil. The only thing on the market seems to be a little short handled cast iron scratcher that you have to get down on your hands and knees to use—a back breaking process.

There is, however, a very efficient little scratcher that any one with a little mechanical ability can make out of an old broomstick and a few feet of wire that will do more to lighten the drudgery of caring for a garden than anything else I know of. Mr. Harold Hume, of Glen St. Mary's, Florida, was the first one so far as I know to make one of these broomstick scratchers. In the light soil of Florida his little "Chinese garden" as he called it (that supplied all his vegetables), was cared for entirely with a little tool of this character. After seeing Mr. Hume's tool, Mr. Fairchild went to work and made a lot of them for our own use and for our friends, and we couldn't get along without them now. The teeth of this little cultivator are made of pieces of heavy wire bent



The "broomstick scratcher," easily made, is an effective lightweight tool

like the teeth of a rake, but there are only three of them and they are much longer and farther apart so that one can scratch all around and even over little plants. The teeth are held together either with some solder or else by twisting a finer piece of wire around them. This makes a tool much like the hand cultivator to be had at any store, only it is larger and much lighter in weight. The whole is then attached to the handle of an outworn broom. The completed tool is so light and so effective that it really is a pleasure to use it. It won't take out big weeds, those you will still have to pull out by hand, but if you use this little cultivator often enough the weeds won't have much chance to grow. The ground won't bake hard either if it is often stirred and the moisture will be kept in the soil.

When you have made one of these broomstick scratchers, as we call them, and have found out what a real help it is, make a few

more and give them to your friends, for if it is a patriotic duty to have a garden oneself, why is it not also a patriotic act to help one's neighbors make their gardens successful? Let us help all we can, and I know of no better way than to give them a tool like the one I have described.—*Marian Fairchild, Washington, D. C.*

More About Intensive Celery Culture.—Since reading in the June issue Mr. Allen's description of his method of raising celery by "the New Culture," I am led to think others might be interested in my method, which is even more intensive.

Last summer from a space containing about 170 sq. ft. I cut and sold at the wholesale price of eight cents a bunch, between \$20 and \$24 worth of celery. This 12

to 14 cents a square foot might easily have been increased to 20 cents if I had retailed. The soil was poor and looked utterly unsuitable for celery; but I had no better place vacant at the time. On July 17th, I set 600 plants of Golden Self Blanching and Easy Blanching celery in twelve rows of fifty each, the plants five inches apart

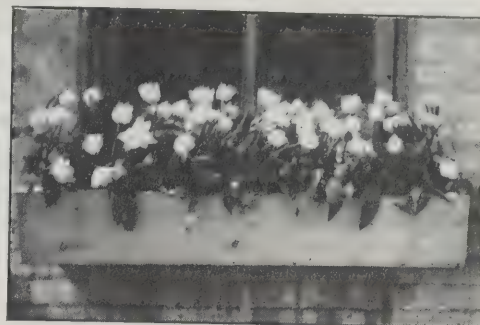
in rows and seven inches between rows; fourteen inches between every four rows thus making beds of four rows each. I had ordered a hundred pounds of cattle manure and the like quantity of prepared humus but did not receive these until nearly two weeks later when the mixture was applied between the rows and hoed in as well as could be done without injuring the roots. On August 28, I began cutting only two or three days after putting on the first celery bleachers and a week later was cutting from a dozen to a dozen and a half bunches daily. Though I put two stalks in most bunches many stalks were large enough to sell alone at ten cents. My garden had not had celery before, and by using the commercial manure and humus and watering daily and very thoroughly and spraying the young plants with bordeaux two or three times I had no trouble with rust.—*N. S., Virginia.*

A Bulb Planter.—Last season I made a very useful bulb planter out of simple materials. This enabled me to get my bulbs in at the best depth without any trouble at all. The point has recently been shown to be one of considerable importance for bulbs placed at too great or too little a depth do not give good results. As can be seen from the picture a stoutish stake was secured. This was between a foot and eighteen inches in length, and it was pointed at one end. At intervals in the stick holes are bored in the sides into which wooden labels can be inserted. Each label bears the name of a particular class of bulbs, and these can be inserted at the height most suitable for the kind. Thus Narcissus do best when planted six inches; that is the base of the bulb is this distance below the surface. The depth for Tulips and Hyacinths is four inches, and that for Crocuses and other small bulbs two and a half inches. Of course when using the planter only one wooden label is in at a

time according to the kind of bulb being handled.—*S. L. B., England.*

Tulips in the Window Box.—As a plant for the window box the Tulip would appear to have been neglected. As most window boxes are so securely fastened that to remove them means some little trouble, a box of tin or light wood should be made of a size to fit snugly into the window box. Into this second box, the Tulips are planted. Only the early or bedding varieties are recommended. A good potting soil will suit the bulbs which are set at a depth of about three inches so that they may be covered with at least two inches of the soil. They are spaced three inches. Settle the soil by watering freely, but do not pack down with the hand. Then bring the box outdoors in a well drained location, covering all to a depth of two or three inches. The Tulips will behave exactly as they would if set out in a bed for spring bloom. Naturally the boxes are to be prepared at the same time that bulbs for bedding purposes are set out. In spring when the Tulips begin to peer through the soil in the box, which can easily be determined by removing some of the extra soil covering, set the box into the window box where the genial warmth of the sun with good watering will develop bloom a little earlier than those in beds. On the other hand if you do not care to go to this trouble give your order to your florist and he can have the Tulips ready in time to shift them into the window boxes. Indeed, he can force the bulbs along a little bit and give you Tulip bloom as early as may be deemed safe in your locality. A hard frost will not interfere with the bloom of a Tulip and furthermore Tulips can be shifted when in bloom, though you will get the longest blooming period when they are shifted before the buds have opened.—*C. L. Meller, N. Dak.*

Making a Lawn in Fall.—This is an excellent time to remodel or make a new lawn. I speak from experience. A year ago I had a very unsightly lawn; originally it had been improperly graded, and, knowing it must at some convenient time be redone, weeds had been allowed full sway. The first of last September the lawn was peeled, and then gone over with pick and spade to a depth of fifteen or eighteen inches and all weed roots removed. The soil was then made very fine, heavily fertilized with bone meal, and at daybreak one fine morning when not a breeze was stirring to



Use Tulips for the window box. They give early color

carry the light seed other than where wanted a combination of Blue-grass and Red-top (the best mixture, apparently, for this region) was thickly and evenly sown, being lightly raked in and rolled. Sticks with white strips of cloth tied upon the ends, which gaily waved in the breezes, were placed about and kept the sparrows from picking up the seed. Nature was kind, adding the last requisite, a gentle rain, and in a very few days the entire lawn was a most beautiful carpet of living green. Early this spring White Clover was very sparingly sown over the surface before it was rolled. Some weeds such as dandelion, plantain and dock, have appeared, as well as some annuals. No attention was given to annuals, but all perennial weeds have been carefully removed, a little soil and grass seed in each case applied, and the wound carefully padded down, and this procedure will be persisted in yearly. There is not a bare spot anywhere. The accompanying picture with its pleasing background of flowers and shrubbery, also fall planted, does not begin to give an adequate idea of this beautiful September made lawn. Not only is this time of the year desirable for the production of a good lawn, but fall usually affords greater leisure than spring; the experienced gardener realizes the necessity of doing everything which it is possible to do in the fall to relieve the congestion of the spring's work, and the making of a sizeable lawn is no small task if well done.—*R. R. A., Jamestown, N. Y.*

Late Strawberry Planting.—I was startled to read in August Garden Magazine that planting could be done as late as November 10—but then, New Jersey is not Massachusetts! We plant here in August.—*G. W. A.*

[—Of course the farther north the earlier the advent of winter.—*Ed.*]



Is fall planting practical?—Everything in the garden, shrubs, trees, lawn and border was fall set

THE MONTH'S REMINDER

PREPARE FOR THE HARVEST—GARDENING FOR THE WINTER—LATE WORK OUTDOORS

NO OTHER month in the garden calendar is so likely *not* to be used to full advantage by the average gardener as this fine month of September. With weather favorable for good growth; with cool late afternoons which still give opportunity for a little garden work "after hours"; with any number of things that can be done now instead of being put off until the crowded weeks of next spring—with all these there is little excuse for the gardener who cannot find plenty of opportunities for all his energies and his skill.

A Chance on Late Plantings

WHILE too late for many of the things which could be planted last month, there are nevertheless a number which can still be put in with a fair chance that they will "come through" in time. Even fairly well north, there are still some sixty days of growing weather probable. This means that radishes, lettuce, spinach, and turnips may still be planted; while even with early beans and beets one can well afford to take a "sporting chance." Beans that are protected from the first frost by leaves, hay, or irrigation are likely to bear a good crop afterward. Beets will of course not mature, but they will have time, with fair luck, to reach the size when they are most delicious for eating, and the tender roots may be canned.

Get Ready—And Then Get Busy!

WHILE a last pot shot at vegetable planting may be taken, still that is only a minor part of the month's work, and no good gardener will feel that he has "done his bit" of fall planting if he stops there. The plantings of perennials, shrubs, evergreens, and hardy bulbs that should be made during the next six weeks are among the most important things in the year's programme.

If your orders for all these things have not yet been sent in, *send them in at once*. No need of waiting to get catalogues. Better still, however, look through the advertising pages of this month's and last month's GARDEN MAGAZINE, and order direct from the items described and offered there. Don't be among those who feel that *this* year may not be the one to plant. Every tree and shrub you set out will within a very few years have added many times its own cost to the value of the place as a whole. Put your place in shape to command its share of the rising real estate values which the next few years will see.

"Plenty to Eat and Dry Feet"

THERE is no black art about fall planting; commonsense and care tell in good results. There are a few general principles which should be kept in mind for all fall planting. *Be sure the drainage is good!* This is even more important now than in spring planting, as the results of poor drainage are likely to be fatal, due to rotting or to freezing. To improve drainage prepare new beds or borders, or the holes where trees or shrubs are to go, by digging out and putting in a layer of cinders or some similar coarse porous material. If any of the spots to be planted are so low that the use of drain tile is necessary to carry off surplus water, by all means do the required draining *before* planting is begun.

Most of the plants set out in the fall will remain in the same places for a number of years, if not for life; and they need something that

will stay by them. They can get it in well rotted manure and coarse ground bone. For bulbs, hardy Lilies especially, the manure may better be omitted, and fibrous compost used in its place. A generous amount of ground limestone (*not* burned or caustic lime) will also be a good precautionary investment, except in the case of those few plants which prefer an acid soil, like Rhododendrons and their kin.

Getting the New Plants Transplanted

THE plants of various kinds, started in July or August for new beds or for wintering over, will require attention again this month. Unlike *dormant* plants set out in the fall, these things should make as much growth as possible *after transplanting*. Therefore set into permanent positions as soon as possible—that is, as soon as they are large enough to transplant well, and conditions for transplanting are favorable. Pansies, English Daisies, and other similar things which make a compact bushy growth will require no pruning back, but those with very large leaves, or tending to make a tall, single-stalk early growth, may profitably be cut back a third or so when being moved. A little tankage, chicken or sheep manure *used* when transplanting will help to keep these young plants growing vigorously until their natural time to cease growth for the winter; but *be careful not to overstimulate* them, especially if they have not been making very rapid growth in the seedbed, because of poor soil, dry weather, etc.

Putting the Garden Indoors

DON'T make the mistake of leaving plants designed for winter use, whether vegetables or flowers, where they are growing until actual freezing weather threatens. As soon as

DO THIS MONTH

1. Make the last succession plantings.
2. Begin fall planting of perennials, shrubs, etc.
3. Prepare beds and borders for late fall planting.
4. Get ready for early harvesting.
5. Build new coldframes and hotbeds, and
6. Overhaul and repair the old ones.
7. Put the greenhouse in shape for the winter.
8. Begin planting under glass.
9. Put in plants for winter bloom.
10. Make or remake the lawn now.
11. Keep the new strawberry bed in shape.
12. Sow cover crops wherever possible.

they are large enough to transplant shift to frames or greenhouse, to get established under conditions as nearly as possible like those in which they have been growing. Be careful to have the frames or benches filled with soil that is both rich and clean. One danger point in getting lettuce, or stocks, or pinks, or other plants into winter quarters under glass is the effect of the sun through the glass. Weak whitewash or other temporary shading on the glass (outside), or cloth sash or even newspapers over the plants, for a few days after transplanting, will help greatly in getting them used to their new quarters. Water should be given rather sparingly until they become established, but frequent sprinkling or syringing of the walks, benches, etc., if the weather is hot and bright, will be of very material benefit. A little nitrate of soda—using about a tablespoonful to the 12-quart watering can—will show marked results if applied as soon as the plants are well rooted.

Begin Planting Under Glass

GET started with first fall crops from seed, like radishes and beans; and also sowings for later plantings of lettuce. The more growth they can make with the sash off entirely, or all the "air" that you can give them, the better; they will be healthier, and you will not have to wait so long for the first good things from indoors.

The Early Frost Gets the Slow Gardener

EVERY two or three years old General Jack Frost catches a bunch of careless gardeners napping. He makes a flying trip without previous warning, and gets such easily injured things as beans, sweet corn, cucumbers, and tomatoes. Therefore the careful gardener takes pains not to get caught unawares as "first frost" date for his section approaches; *not the average* date on which the first occurs, but the earliest on which it has been known to occur—which is about three weeks in advance of the average. A week or more before that time, begin to reduce any surplus there may be. The tomatoes, of course, are good for any number of pickles and preserves. But in addition to that, the best of the full-grown but green fruits may easily be kept and gradually ripened by storing them in leaves or hay in a dry warm place—like an empty coldframe, with sash handy for cold nights and wet weather. Cucumbers gathered green and kept in a rather cool, moist place, out of the light, will remain in good condition for a long time, but if merely "touched" by the frost they will spoil very quickly.

Get Ready With New Frames

IF YOU have never before had a coldframe, make up your mind to get one ready at once. Even if you have to begin at the beginning in learning to "run" it, the practice you can get this fall will stand you in good stead in the spring. Moreover—the frame will be *ready for you!* Don't be in the army of "wishers" again next March. At a reasonable cost you can get your frame, as well as the glass "sash" which goes on top of it, all cut and ready to put together in a jiffy; nothing for the man who receives it to do but put a few bolts in place and dig a little hole. It will also be wise to thoroughly overhaul the old frames at this time. Every cracked glass in the greenhouse, even if it is in no danger of coming out now, should be relaid in fresh putty and made absolutely firm, or better still replaced with a whole new light, using the one removed, for a sash or plant forcer. A glass once cracked is almost sure to cause trouble later on—and at just the worst time.

Don't Forget the Winter Overcoat

IN THE rush of work there will be if you try to attend to everything that can be done to advantage this month, don't forget to put a cover crop on every square foot of the garden that is cleared, just as fast as it is cleared, or before. You can rake up the ground and sow *between* the rows of late crops, such as onions and carrots and late potatoes, and the last planting of sweet corn. The more green stuff you can have to fork or plow under in the spring, the better your vegetable garden will be next season. *Herein lies the first step in preparedness for next year's food campaign!*—[See page 58]



A good succession—three lots of Freesia in this greenhouse in proper relationship



Outdoors the hardy bulbs are excellent for naturalizing in wide stretches or in the shrubbery

Bulbs for Twelve Months, Indoors and Outside

W. C. McCOLLOM

ANY one ought to be able to get flowers from bulbs, because the flower is already inside the bulb when received and the process of development is so simple as to be almost mechanical.

As a class, bulbs will give great returns for the labor invested. The more common kinds will stand neglect and abuse with practically little, if any, result on their flowering. This, of course, does not constitute a reasonable excuse for neglecting them entirely, as they are very responsive to good treatment and indeed this elasticity in their culture makes them "every man's flower." Even without a greenhouse fresh flowers can be had—from bulbs—all through winter. For early flowers in the formal garden, where can you find even an acceptable substitute? For naturalization they excel. A strip of woods or a meadow bog can be made into a veritable fairyland, and what would a rockery be without its little Scillas and Grape Hyacinths.

Though bulbs are generally looked upon as spring flowers (it is true that the majority of those more commonly used, do flower in spring), there are others that flower during the summer and fall and, by proper selection, it is possible to have bulbs which flower every month, from the little Snowdrop in March, until September when the Fall Crocus (*Colchicum*) sends up its weird attractive flowers.

"Don't buy cheap bulbs." This is not given as a reprimand, but rather as advice. Bear in mind, that practically all individuals of a given variety look very much alike. Yet some might be dear at one cent each, others cheap at five

At this writing there seems to be a reasonable prospect of an adequate supply of Dutch bulbs reaching America for planting this fall.

It has been officially stated that an agreement has been entered by all authorities concerned covering the necessities of the case.

It may probably be assumed, however, that the supply will be limited and the necessity of early reservations is apparent, for "first come first served."

It is also reported that a small supply of domestic grown bulbs will be available, but this source is not as yet developed sufficiently to offset the foreign conditions to any appreciable degree; and for some years to come, even under the best of circumstances, the domestic industry must of necessity be small.

cents each. These bulbs have been carefully selected by experienced men in the field where they are collected and sorted according to their value, and I am always willing to accept these experts' appraisal of value over my own judgment. I therefore make a practice of buying the best, which (I must confess, however) is judged on a price basis by going to a responsible concern. It is safe to shop on this method.

"Buy early, plant early," is another bit of advice that has been shouted so long and loud that it seems to be almost over-familiar, like the customary "Vote early" pre-election slogan of the newspapers. *But every day counts.* Remember that bulbs have a limited time in which to make roots to sustain them over the winter and the better the root system developed before the advent of exceeding cold, the better the results when flowering time arrives.

DO NOT imagine for a moment that by delaying your planting you are saving money because bulbs are getting cheaper. True, prices will be lower later on not because time is getting shorter, but simply because every selection from stock means that the better bulbs are taken out, until by the time the very cheap offers are made only the culls are left.

Like most other things, bulbs delight in good treatment. Good wholesome growing conditions; good things to eat, and plenty to drink. These given and good results are certain. In eatables they prefer well-rotted manure, spaded into the ground to a depth of

about twelve inches but, lacking this, decayed vegetation or fertilizer may be used. They are water lovers and some substance which is retentive of moisture will be most satisfactory. Manure, therefore, serves a double purpose; it catches and stores the moisture, subject to the call of the plant and, decomposing slowly, releases foods in about the proportion that the plants assimilate it.

The general rule for planting bulbs is to plant the bottom of the bulb about four times the depth of the bulb below the surface. In case of any divergence from this rule, I prefer deeper rather than shallower planting, as strong bulbs are sure to come through and the weak ones are a failure even under favorable conditions. Deep planting also encourages deep rooting.

Planting for the Greatest Display

FORMAL plantings offer a varied field of the most exacting nature. Of course bulbs selected for this purpose must all flower at one time in order to get the desired effect. It is also essential that all the varieties be in a combination of uniform height. Different varieties of the same type may be used to give some color scheme but do not mix Tulips and Narcissi, for instance. Beds for formal planting needs be prepared thoroughly, of an even texture to assure identic conditions. The customary method is to spade or fork under some manure, leaving the surface smooth and evenly raked. Then the bulbs are placed at uniform distances, starting in the centre, using a



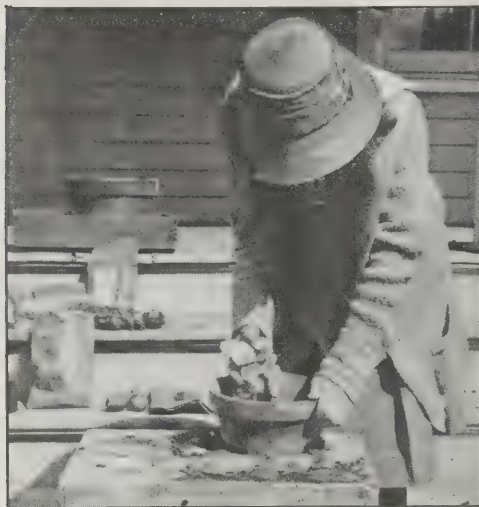
Before covering up to get root growth the bulbs are watered. Each lot is carefully labeled



Lifting from the outdoor trench ready to be taken inside for "forcing" into bloom

plank to prevent tramping the soil unevenly. The planting should be done with a dibber planting tool that can be made from the handle of a spade or fork sawed off about six inches below the grip. This is forced into the ground to an even depth, thus assuring uniform planting. Plant the bulbs from four to six inches apart and preferably on a little sand.

Dutch Hyacinths are specially adapted for formal plantings. They offer a good range of colors in shades of blue, red, yellow, and white



First step in potting. A layer of rough material to give drainage

and are extremely fragrant. Their solid masses of color and extreme earliness make them very popular.

Single Early Tulips of which there are numerous varieties ranging in the various shades of scarlet, crimson, red, yellow, orange, pink, violet, white, etc., are excellent for formal plantings. There are numerous strong,



Individual bulbs placed securely on the soil of the partly filled pot

bold colors in the Tulips and judgment must be used for the production of well blended color plantings. Double Tulips might also be used, but they flower later and must not be mixed with the early singles.

Late flowering Tulips such as Picotée, Maiden's Blush, Bridesmaid and other varieties, including the Parrot Tulips, are also fine when massed together. Each must be used separately; any attempt to mix them in formal plantings will result in failure. The "coup de maître" for formal plantings is the beautiful Darwin Tulip, standing three feet high with long graceful stems and keeping for weeks in perfect condition. The range of colors is all that could be desired, carmine, maroon, rose, salmon, blue, white and almost a perfect black. They are worthy of a setting all their own in any garden.

Narcissus and Daffodils of various types can

well be used in formal plantings. The singles are by far the surest and most satisfactory but the sweet smelling Jonquils might also be included but not actually mixed—i. e., the true rush-leaved, not the so-called of the cut flower men which is a Trumpet Daffodil. When the garden consists of a number of beds, some might be devoted to different varieties such as the Jonquil, Poet's Narcissus, and the Polyanthus type.

After the bulbs have finished their flowering,



Finish off by pressing the soil firmly about the bulbs and covering their tops

they may be lifted and placed on their side in shade, as somewhere on the north side of a building where the bulbs will ripen. Handled thus the bulbs may be used for several seasons; Narcissus even for a period of many years. Take care that the varieties are not mixed and that Tulips are not kept until they are a failure before replacing the bulbs. The space in the

Bulbs for Forcing in the Greenhouse or Dwelling

WHEN TO PLANT	COMMON NAME	BOTANICAL NAME	DISTANCE APART	DEPTH TO PLANT	SEASON OF BLOOM	HEIGHT IN INCHES	REMARKS
July-Nov.	Japanese Lily	Lilium speciosum	6-7 inch pots†	4-6 inches	Dec.-Apr.	24-48	Cold storage bulbs available for early forcing
Aug.-Sept.	Brodiaea	Brodiaea	4 inches	2 inches	Feb.-Apr.	12	Very delicate flower for cutting
Aug.-Sept.	*Freesia	Freesia refracta	3-4 inches	2 inches	Dec.-Apr.	12-24	One of the best of all for cutting
Aug.-Sept.	*Roman Hyacinth	Hyacinthus orientalis alba	4 inches	4-6 inches	Nov.-Apr.	12	Forces well; free flowering; very fragrant
Aug.-Sept.	*Madonna Lily	Lilium candidum	6-7 inch pots†	4-6 inches	Jan.-Apr.	36-72	Small flowering type; long spikes; good cut flower
Aug.-Sept.	*Easter Lily	Lilium Harrisii	6-7 inch pots†	4-6 inches	Dec.-Apr.	36-72	One of the best of all Lilies
Aug.-Sept.	*Calla Lily	Richardia aethiopica	6-7 inch pots†	4-6 inches	Dec.-Apr.	36-48	Requires rich soil and heavy feeding
Aug.-Sept.	Little Gem Calla	Richardia aethiopica var.	5-6 inch pots†	3-4 inches	Dec.-Apr.	12-18	Miniature type of the Calla
Sept.-Oct.	*Flowering Onion	Allium Moly	4 inches	3 inches	Dec.-Apr.	12-18	Very free flowering but of unpleasant odor
Sept.-Oct.	Windflower	Anemone Coronaria	6 inches	1-2 inches	Feb.-Apr.	6	Grow cool; very showy; excellent for cutting
Sept.-Oct.	Mariposa Lily	Calochortus	4 inches	3 inches	Feb.-Apr.	12	Richly colored flowers; should be more grown
Sept.-Oct.	*Crocus	Crocus	3 inches	3 inches	Jan.-Apr.	6	Very pretty in pans and pots
Sept.-Oct.	Sowbread	Cyclamen	6-7 inch pots†	Just covered	Dec.-Apr.	12	Excellent for cutting or pot decoration
Sept.-Oct.	Italian Hyacinth	Hyacinthus amethystinus	4 inches	4-6 inches	Jan.-Apr.	6	Graceful flower for cutting; easily forced
Sept.-Oct.	*Dutch Hyacinth	Hyacinthus orientalis	4 inches	4-6 inches	Jan.-Apr.	12	Good range of colors. Both double and single forms
Sept.-Oct.	Cape Cowslips	Lachenalia	4 inches	3 inches	Feb.-Apr.	12	Uncommon bulb; pretty and worth attention
Sept.-Oct.	Jonquil	Narcissus Jonquilla	4 inches	4-6 inches	Jan.-Apr.	12	Old-fashioned but still popular; sweet smelling
Sept.-Oct.	*Chinese Sacred Lily	Narcissus orientalis	4 inches	4-6 inches	Nov.-Apr.	12	Sweet smelling type is excellent for mixing
Sept.-Oct.	Pheasant's Eye	Narcissus poeticus	3 inches	4-6 inches	Feb.-Apr.	12	One of the very best for cutting
Sept.-Oct.	*Single Daffodils	Narcissus Pseudo-narcissus	4 inches	4-6 inches	Dec.-Apr.	12-24	Contains both medium and large trumpet types
Sept.-Oct.	*Double Daffodils	Narcissus Pseudo-narcissus	4 inches	4-6 inches	Jan.-Apr.	12	Good for pans but rather heavy for cutting
Sept.-Oct.	*Polyanthus Narcissus	Narcissus tazetta	4 inches	4-6 inches	Jan.-Apr.	12-18	Contains several small flowering types; very good
Sept.-Oct.	*Paper-white Narcissus	Narcissus tazetta alba	4 inches	4-6 inches	Nov.-Apr.	12-18	Very early; invaluable for cutting
Sept.-Oct.	Guernsey Lily	Nerine sarniensis	5-6 inch pots†	Just covered	Jan.-Apr.	12-24	Another type of the Amaryllis
Sept.-Oct.	Star of Bethlehem	Ornithogalum arabicum	6 inches	4 inches	Jan.-Apr.	12-18	Very attractive; fine for cutting; should be more grown
Sept.-Oct.	*Oxalis	Oxalis	4 inches	2 inches	Dec.-Apr.	12	Very pretty for hanging baskets and pots
Sept.-Oct.	Buttercup	Ranunculus	4 inches	2 inches	Feb.-Apr.	6	Very showy for growing in pots or pans
Sept.-Oct.	Darwin Tulips	Tulipa Gesneriana vars	3 inches	3-4 inches	Feb.-Apr.	24-30	Cannot be forced early
Sept.-Oct.	Late Flowering Tulips	Tulipa Gesneriana vars	3 inches	3-4 inches	Feb.-Apr.	12-18	Several fine types for late forcing
Sept.-Oct.	*Single Tulips	Tulipa suaveolens	3 inches	3-4 inches	Dec.-Apr.	12	Earliest type of Tulip for forcing
Sept.-Oct.	*Double Tulips	Tulipa sylvestris	3 inches	3-4 inches	Jan.-Apr.	12	Showy for pots and pans in decorative work
Sept.-Dec.	Lily-of-the-Valley	Convallaria majalis	2 inches	Just covered	Oct.-Apr.	6	Cold storage pips make flowers available at all times
Oct.-Nov.	Sword Lily	Gladiolus	3 inches	3 inches	Feb.-Apr.	12-18	Cold storage bulbs are used for early forcing
Oct.-Nov.	French Iris	Iris persica	3 inches	3 inches	Jan.-Apr.	12	Grow cool; don't attempt to force until late December
Oct.-Nov.	*English Iris	Iris xiphioides	3 inches	3 inches	Jan.-Apr.	12	Grow cool; use light soil; feed freely after budding
Oct.-Nov.	*Spanish Iris	Iris Xiphium	3 inches	3 inches	Jan.-Apr.	12	Grow cool; excellent for cutting
Oct.-Nov.	Ixia	Ixia	4 inches	3 inches	Feb.-Apr.	18	Beautiful cut flower; must be grown cool
Oct.-Nov.	Sparaxis	Sparaxis	4 inches	3 inches	Feb.-Apr.	12	Grow cool; don't start too early; fine cut flower
Nov.	White Trumpet Lily	Lilium longiflorum	6-7 inch pots†	4-6 inches	Feb.-Apr.	24-48	Most satisfactory for late forcing
Dec.-Jan.	Belladonna Lily	Amaryllis Belladonna	6-7 inch pots†	Just covered	Feb.-Apr.	24-30	Very showy, flowers sometimes 9-12 inches across

* These are the best types for forcing in the dwelling. † Indicates size of pot for single bulb.



Tender bulbs (Lilies and Freesias) are best put into a cold frame after potting

beds can be planted with other attractive bedding plants for summer.

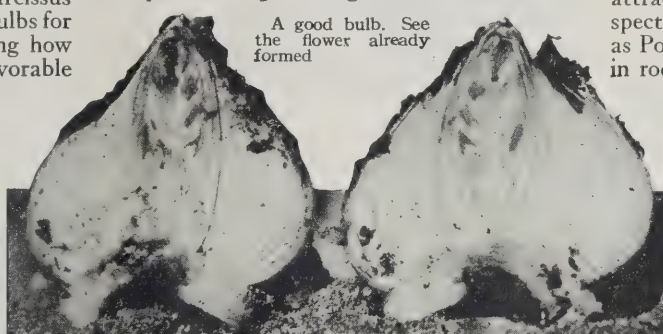
Wild Gardening in Wood and Meadow

ASSURED by one of the most effective uses for bulbs is the so-called naturalization planting. Only such bulbs as keep increasing are used, and they are planted in locations where they may remain undisturbed for years. Meadow bogs that are not too wet, wild gardens, around water gardens, woodlands which are not too dense, borders of shrubbery, etc., offer opportunities for the establishment of a permanent planting of bulbs. The Narcissus family unquestionably offers the best bulbs for naturalization. It is really astonishing how rapidly the bulbs will increase under favorable conditions especially in a meadow bog or in a strip of oak woods, where the late leafing of the trees is favorable to the development of the flowers below. Practically all the more popular types of Narcissus are available. The beautiful native Trillium is invaluable for woodland planting, its frail, delicate appearance always exciting admiration. In some places the old Tiger Lily can be used and will in-

crease very rapidly and several of the Japanese species of Lily, like *L. regale* are quite adaptable. The Alliums are best suited for wild effects and not the buttonhole use as, belonging to the onion family, they have the odor of their class. Around the base of trees, borders adjoining summer houses, placed where close inspection is invited, Lily-of-the-valley is invaluable. The flowers form a perfect mat in season and the foliage is attractive the year through. Other small-flower types that may be used are Hyacinth, Scilla, Grape Hyacinth, Crocus, Bulbocodium and Snowdrop. Anemone comes in many beautiful and brilliant colors and shades. The peculiarly colored mottled Fritillary, with drooping, egg shaped flowers will be found satisfactory for shady places, and the Mariposa Lilies (*Calochortus*) may be attempted, but it must have proper drainage and must be amply protected; if the soil be heavy, reeds, boards or other covers must be placed over the plants in fall to shed water as the bulbs will not stand the freezing and thawing conditions of the Eastern winter.

Rock Gardens for the Connoisseur

UNIVERSALLY the rock garden is fast becoming one of the most popular forms of specialized gardening. There is so much



Space under the greenhouse bench is used for the first step of forcing

ingenuity and originality about them that they attract the creative mind. Being comparatively new in popular favor, we are not confined to paths already hard traveled by others; each gardener has a chance to show what taste and constructive ability he has. Bulbs are indeed indispensable. Of course you use bulbs of permanent character and also avoid showy, gaudy colors, as the tone of a rockery should be subdued. Color? Yes! But quiet and refined, not like a formal garden in front of some large summer hotel. The aim is quite different, one is for effect and the other to attract closer attention and invite detailed inspection. The small flowering Narcissus such as Poet's, or Polyanthus types, are permissible in rock gardens; but the large flowering type will be out of place. All small flowering Cape bulbs (such as Snowdrop, Scilla, Grape Hyacinth, and Crocus), flowering at different periods from March to June offer material for a continuity of bloom. Alliums are among the best bulbs for rock garden planting; their thin drooping foliage and large umbels of dainty flowers can be had in yellow, white, and blue. Trillium must not be allowed to suffer

Bulbs for Planting Out-of-doors

WHEN TO PLANT	COMMON NAME	BOTANICAL NAME	DISTANCE APART	DEPTH TO PLANT	SEASON OF BLOOM	HEIGHT, IN INCHES	REMARKS
Aug.-Sept.	Madonna Lily	<i>Lilium candidum</i>	12-18 inches	12 inches	June-July	36-48	Very fragrant; long spikes; excellent cut flower
Sept.-Oct.	Flowering Onion	<i>Allium Moly</i>	4-6 inches	4 inches	May-June	12	Very free flowering and showy
Sept.-Oct.	Windflower	<i>Anemone coronaria</i>	4-6 inches	3 inches	May-June	6	Must be protected over the winter
Sept.-Oct.	Meadow Saffron	<i>Bulbocodium vernum</i>	4-6 inches	4 inches	Mar.-Apr.	3	Very early and somewhat similar to the Crocus
Sept.-Oct.	Mariposa Lily	<i>Calochortus</i>	4-6 inches	4 inches	July-Sept.	12	Must be well protected over the winter
Sept.-Oct.	Indian Quamash	<i>Camassia camassia</i>	6-8 inches	4 inches	Apr.-May	18-24	Good cut flower; similar to the Anthericum
Sept.-Oct.	Glory-of-the-Snow	<i>Chionodoxa Luciliae</i>	4-6 inches	4 inches	Apr.	3	Very showy; good for rockeries and wild gardens
Sept.-Oct.	Crocus	<i>Crocus</i>	4-6 inches	3 inches	Mar.-Apr.	3	Fine for color masses in early spring
Sept.-Oct.	Winter Aconite	<i>Eranthis hyemalis</i>	4-6 inches	4 inches	Mar.-Apr.	6	One of our earliest spring flowers
Sept.-Oct.	Crown Imperial	<i>Fritillaria imperialis</i>	12-15 inches	9 inches	June-July	12-18	Fine bright colored flower; needs protection
Sept.-Oct.	Guinea Hen Flower	<i>Fritillaria meleagris</i>	8-12 inches	6 inches	June	12	Very odd drooping flower of peculiar colors
Sept.-Oct.	Snowdrop	<i>Galanthus nivalis</i> , etc.	4-6 inches	4 inches	Mar.-Apr.	6	The real harbinger of spring
Sept.-Oct.	Italian Hyacinth	<i>Hyacinthus amethystinus</i>	6-8 inches	6 inches	Apr.-May	12	A little more hardy than the Roman type
Sept.-Oct.	Feathered Hyacinth	<i>Hyacinthus orientalis</i>	6-8 inches	6 inches	Apr.-May	6	Very delicate; fine for cutting
Sept.-Oct.	Dutch Hyacinth	<i>Hyacinthus orientalis</i>	6-8 inches	6 inches	Apr.-May	12	Very sweet scented; showy bedding flower
Sept.-Oct.	Roman Hyacinth	<i>Hyacinthus orientalis alba</i>	6-8 inches	6 inches	Apr.-May	6	One of the favorites for cutting; fragrant
Sept.-Oct.	Wood Lily	<i>Lilium canadense</i>	8-12 inches	6 inches	May-June	12	One of our best bulbs for naturalizing in woods
Sept.-Oct.	Grape Hyacinth	<i>Muscari botryoides</i>	6-8 inches	4 inches	Apr.-May	6	One of the best for wild or rock gardens
Sept.-Oct.	Barrii Daffodils	<i>Narcissus Barrii</i>	6-8 inches	4 inches	May	12-18	Small cup type; very fragrant
Sept.-Oct.	Cyclamen Daffodils	<i>Narcissus cyclamineus</i>	6-8 inches	4 inches	Apr.-May	12	Very odd bell shaped drooping flowers
Sept.-Oct.	Jonquil	<i>Narcissus Jonquilla</i>	6-8 inches	6 inches	May-June	12-18	Very fragrant; excellent for cutting
Sept.-Oct.	Leedsii Daffodil	<i>Narcissus Leedsii</i>	6-8 inches	4 inches	May-June	12-18	Very effective small flowering type
Sept.-Oct.	Pheasant's Eye	<i>Narcissus poeticus</i>	6-8 inches	4 inches	May-June	12	One of the best for bedding and general planting
Sept.-Oct.	Double Daffodil	<i>Narcissus Pseudo-narcissus</i>	6-8 inches	6 inches	Apr.-May	12	Showy for color masses
Sept.-Oct.	Single Daffodil	<i>Narcissus Pseudo-narcissus</i>	6-8 inches	6 inches	Apr.-May	12-24	Very hardy and spreads persistently.
Sept.-Oct.	Scilla	<i>Scilla sibirica</i>	6-8 inches	4 inches	Apr.-May	6	Earliest blue flower in spring
Sept.-Oct.	Parrot Tulip	<i>Tulipa acuminata</i>	8-12 inches	6 inches	May-June	12-18	Very showy; splashed red and yellow colorings
Sept.-Oct.	Darwin Tulip	<i>Tulipa Gesneriana</i>	8-12 inches	6 inches	May-June	24-30	Best Tulip for general planting
Sept.-Oct.	Rembrandt Tulip	<i>Tulipa Gesneriana</i>	8-12 inches	6 inches	May-June	24-30	Variegated Tulip; tall and stately; fine for cutting
Sept.-Oct.	Single Tulip	<i>Tulipa suaveolens</i>	6-8 inches	6 inches	Apr.-May	12	Earliest flowering type
Sept.-Oct.	Double Tulip	<i>Tulipa sylvestris</i>	6-8 inches	6 inches	May-June	12	Effective for bedding and masses of color
Oct.-Nov.	Fall-flowering Crocus	<i>Colchicum autumnale</i>	4-6 inches	4 inches	Sept.-Oct.	3	Very odd flower, both in color and form
Oct.-Nov.	Lily-of-the-Valley	<i>Convallaria majalis</i>	12-15 inches	4 inches	Apr.-May	6	Plant clumps; soon grows to solid masses
Oct.-Nov.	Summer-flowering Hyacinth	<i>Galtonia candicans</i>	24-36 inches	6-8 inches	July-Aug.	30-36	Large spikes of graceful drooping flowers
Oct.-Nov.	French Iris	<i>Iris persica</i>	4-6 inches	3 inches	May-June	12	Excellent type; needs protection
Oct.-Nov.	English Iris	<i>Iris xiphoides</i>	4-6 inches	3 inches	May-June	12	Must be well protected to endure winter
Oct.-Nov.	Spanish Iris	<i>Iris Xiphium</i>	4-6 inches	3 inches	May-June	12	Fine cut flower; not a robust grower
Oct.-Nov.	Hybrid Lilies	<i>Lilium hybridum</i>	12-18 inches	12 inches	July-Sept.	24-48	Needs extra care to winter; fine cut flowers
Oct.-Nov.	Tiger Lily	<i>Lilium tigrinum</i>	12-18 inches	12 inches	July-Aug.	24-36	Numerous very valuable garden varieties
Oct.-Nov.	Buttercup	<i>Ranunculus</i>	2-3 inches	3 inches	Apr.-May	6	Effective in masses for color schemes
Oct.-Nov.	Wand Flower	<i>Sparaxis</i>	6-8 inches	4 inches	May-June	12	Good for borders and rockeries; needs protection
Nov.-Dec.	Liver Leaf	<i>Hepatica triloba</i>	4-6 inches	4 inches	Apr.-May	6	Fine flowers with extra care of winter protection
Nov.-Dec.	Golden Banded Lily	<i>Lilium auratum</i>	12-18 inches	12 inches	Aug.-Sept.	24-36	Attractive little flower for the collector
							Showiest of all the great family of Lilies

for want of water, especially after flowering. The small flowering Iris such as the Spanish, English, and French types are certainly most beautiful when used in masses. The Mourning Iris (*I. Susiana*) will respond to the good drainage conditions of the rock garden, and equally because of the steep grades and unusually good drainage such conditions afford, a number of so-called half hardy bulbs will find congenial quarters. These bulbs decay generally because of excessive moisture caused by the constant changes in our winter weather and, while that condition cannot be changed, its effect can be removed by proper mulching after the ground is once frozen and then in case of thawing, the excess of water drains away quickly.

Where the proper protection is applied and the grade is favorable, such bulbs as Montbretia, Bulbocodium, Chionodoxa, Colchicum, and Camassia may be used.

Growing Indoors for Early Bloom

ONE of the greatest assets of the bulb is its adaptability to house culture. There are two distinct methods; (a) in pots or pans with earth and (b) using water in glasses, etc. Either will give results; but the latter method utterly destroys the bulb which must be thrown away. My preference is for the former as it looks more natural.

For forcing in the house, plant the bulbs just as soon as they can be secured. They may then be placed in a cool cellar, or (preferably) buried out of doors until they make root. The bulbs, however, are hard to get at when wanted during winter, especially during snowy or heavy freezing weather; but when placed in the cellar they must be kept watered as all bulbs delight in an abundance of moisture. When the pots are filled with roots, it is safe to start forcing them as convenient.

The water method is essentially the same. Small glasses, holding one bulb, may be used; but better still use large bowls, about half filling them with clean white pebbles and a little broken charcoal to keep the water sweet. The roots cling to these white pebbles, and will give the bulbs support enough to keep them upright. The bowls or glasses are then put away in a dark, cool cellar until they have made sufficient roots. It is not necessary to change the water, but keep it filled up to a level, just at the bottom of the bulbs. When the water discolors and it is desirable to change it for sanitary reasons, the new water should be of the same temperature as that removed.

All Hyacinths may be forced in this man-

ner. Though the Dutch Hyacinth is most commonly used yet the Roman, Italian, and Miniature types are worth while and are quicker. Of the Narcissus family the chaste, fragrant, Paper-white Narcissus is perhaps the best, but any of the single or double Polyanthus or Jonquil types may be used. Early flowering Tulips are also easy for forcing in the



Here's a trick to be remembered in the spring. Covering bulbs that are pushing up flowers before the leaf growth is made in order to "draw" the leaves

house. Any of the "forcing varieties" which are simply extra early varieties, can be used for the dwelling.

The late flowering Tulips, such as the Parrots and the Darwins, can be forced in the house but not to bloom early; it is not safe to start the late flowering types before the middle of February.

Freesias will also do well in the house. These bulbs are not hardy and, planted in August or September, may be placed outside and covered with about two inches of ashes until the growth shows through. They may then be removed to a cellar which is not too dark because since growth has started it is not advisable to stop it entirely. These bulbs will not force well in water. The bulbs may be saved from year to year, in fact the stock can be increased by saving the young bulbs which form freely. This is not true of other forcing bulbs which once forced (in soil) are of no further value for this purpose. They may be

used for outside planting but not for forcing again. Crocus and Spanish Iris can also be forced in the house but neither will endure much heat. A cool window or the west side of a house where they get some sunlight will best suit. They must not be forced until they are thoroughly rooted. These two conditions cause practically all of the trouble that folks have in forcing these two bulbs—not waiting until the bulbs are substantially rooted or forcing them "too fast"—which means in too warm a place.

Garden Planting in General

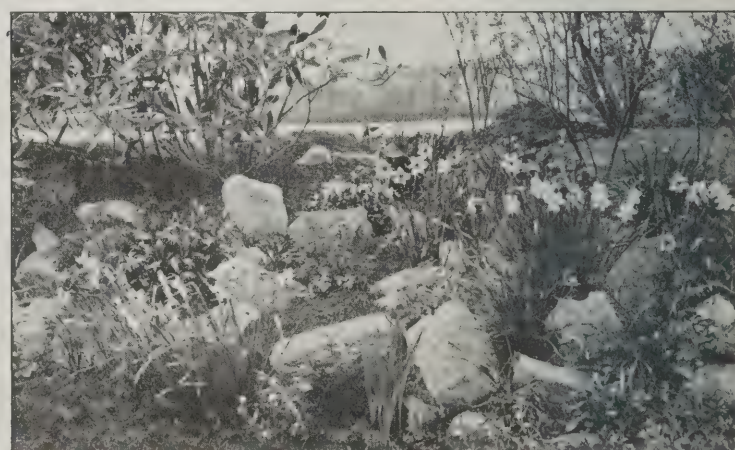
FOR planting in border shrubberies and such like the hardy bulbs of all kinds are used according to the planter's fancy. In the perennial border or for mixing with other flowers of any kind Hyacinths are very useful. The beautiful Summer Hyacinth (*Hyacinthus* or *Galtonia candicans*) is one of the best bulbs we have, flowering in July and August its tall spikes of drooping white flowers are extremely showy. The Darwin, Gesneriana, late flowering Parrot, and both double and single early flowering Tulips are all available and indeed the problem is simply one of selecting those that please one's fancy and are suited for the conditions. The Daffodils afford some of the very best spring flowers and any place will be livened up with the cheerful yellow and white of these old garden favorites.

Lilies offer us opportunities that we should not neglect to seize. Some of the most beautiful flowers of the garden are in the Lily family and the majority of them are hardy if planted about one foot deep on a little bed of sand made to carry off superfluous water until the bulb gets rooted. The various Japanese Lilies, especially the attractive Orange Lily are fine subjects for the garden. *Lilium auratum* with its beautiful white with crimson spots and gold band; *Lilium Kiraetzeri*, an extremely large flowering white lily; *Lilium candidum* the Madonna Lily, small but extremely prolific; *Lilium Brownii*, and the beautiful tall *Lilium Henryi* of an attractive yellow.

Crown Imperials are unusual looking plants and could with advantage be used more in garden settings. This plant has large spikes of drooping crimson flowers that are borne in a terminal crown on a stem often two inches in length. Plant about nine inches deep and mound up the earth to turn water. *Fritillaria*, *Colchicum*, *Scilla*, *Snowdrop*, *Trillium*, *Allium*, and *Lily-of-the-valley* are all valuable. The management of bulbs in the greenhouse is discussed on another page.



Massed plantings before shrubs



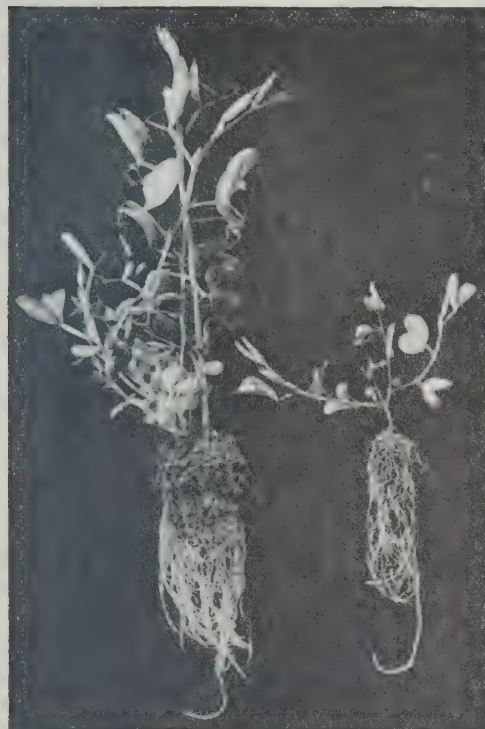
Scattered plantings in rockery, etc.

I Say: Sow Sweet Peas in the Fall for Early Bloom

G. W. KERR, President American Sweet Pea Society

[EDITOR'S NOTE: Quiet but potent influences work wonderful changes in living things as time rolls on. Sometimes the evidences are external, and readily observed, at other times they are far more subtle, resulting in changes of the internal vital processes. In the Sweet Pea internal changes have been very remarkable. The Spencer or large flowered type suddenly loomed into being, the plant otherwise being the same as of old; so also the Early-flowering habit crept up and after being recognized gives the start to a Winter-flowering or Early strain which differs from the family in that one thing. As a result Sweet Pea growing is revolutionized.]

Q. Why should Sweet Peas be sown in the fall instead of spring? *A. Because results are so much better.*
Q. Why are results so much better from fall sowing? *A. Because the plants make a much stronger root growth under ideal conditions, come into flower several weeks earlier*



A comparison of root development. Fall sown Sweet Peas make a greater growth and can better withstand drought

than from sowings made in spring, and give a much longer season of bloom.

WHEN sowing is delayed until spring it often happens that owing to weather and soil conditions we are not able to get on to the ground until well into April. What is the sequel? The seed may germinate quickly; but, toward the end of May and during June, when we usually have a spell of hot weather, the plants may be six to nine inches in height and the roots may have penetrated the soil to the depth of six inches—but what follows? The



An early April view of Sweet Peas sown second week of October, 1916, in frame. First flowers early in May

plants if far enough advanced may rush into flower, give a few small blooms, when, owing to insufficient root growth, they are simply cooked in the hot, dry weather, the plants take on a sickly yellow hue, and in course, die.

What about our fall sown plants? Assuming the seed is properly sown the plants will be well rooted even previous to the winter frosts, and although they may not make much top growth during the mild periods of weather which is usually sandwiched in between spells of frost, say from December until March, yet during all such periods root growth is taking place, with the result that when mild weather comes in March the plants may only be three or four inches in height, but the roots will have penetrated the soil to a depth of twelve inches or more, and top growth then commences in earnest. In this section (Philadelphia) such plants will begin blooming during May. If early varieties are used flowers may in early seasons be cut by the end of April, and the plants will continue blooming for many weeks.

Ideal Method of Sowing

TO THE best of my belief, and by the evidence of my own experiences, there is no chance of failure by the following method.

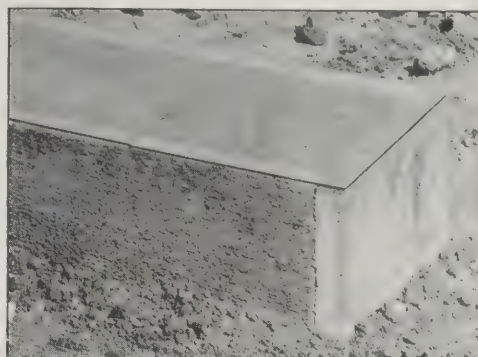
The ground has been well prepared by deep digging (trench two feet deep if possible) and thorough manuring, when cow or stable manure, old garden refuse, etc., may be incorporated quite liberally. Sow the seed during the second week of October, covering not more than two inches. Place boards, six to nine inches wide, on edge along both sides of the row, nine inches apart, make close at the ends. This little Sweet Pea frame must be covered later with glass, but the covering is not to be put on until severe weather sets in, and is always removed during warm mild spells. The seedlings will be three inches high before severe freezing weather. A slight frost will not harm them, and as Sweet Peas are impatient of any coddling, they should have all the air possible during mild weather, though it is well to have them covered during periods of excessive rains. The glass may be held in position by broad headed nails under which the panes of glass can be quickly placed. Or they may be secured with string attached to tacks driven into the boards.

When the weather opens up remove the glass entirely. This will be some time in March. The boards should remain in place to protect the plants from strong winds, but as a rule they may be removed by the end of March or early April, when the ground is worked around the plants and supports of brush, twine or wire trellis put in position that the vines may receive no check in their future development.

The Sweet Pea frame can be later used to cover early sowings of lettuce, or other vegetables.

Varieties for Fall Sowing

WITHIN the past few years a new race of Sweet Peas has been developed, namely the Early Flowering or Long Season Spencers. This is the type best adapted for fall sowing, beginning to bloom two or three weeks earlier than the summer-flowering Spencers; and,



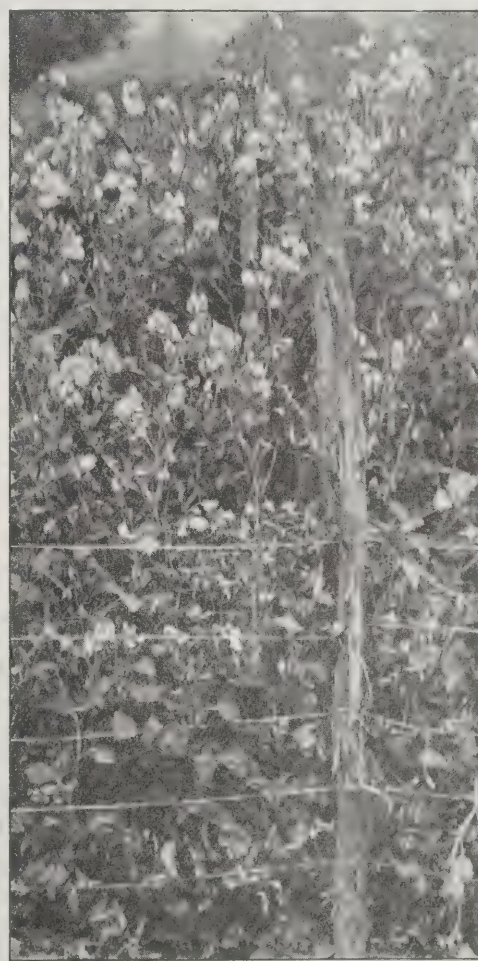
Frame, of wood sides and glass top covering the fall sown Sweet Peas. Can be used in spring for vegetables

when started in the fall, continues flowering quite as long as the regular type.

Among the best of the new Early Flowering Spencer sorts I have tried out and can thoroughly recommend are:

Early Enchantress, rich rose-pink self; Early Pink Beauty, large, soft pink; Early Primrose Beauty, cream, flushed pink; Early Rosy-Morn, rose with crimson standard; Early Sankey, large white self; Early King, crimson-scarlet self; Early Pink and White, reddish-pink standard with blush white wings; Early Loveliness, white, heavily bordered rich pink; Yarrowa, glowing rose-pink with creamy base.

If, in addition to the above, a few of the best of the regular



Early Spencer plants shown on the left as they appeared end of June,—been in flower since early May

Spencers are desired there are none better in their various colors than: Elfrida Pearson, bluish pink; Hercules, rich deep pink; King Edward Spencer, glowing crimson; King White, pure white self; Lilian, salmon pink; The President, orange scarlet; Firey Cross, glowing fiery-red; Constance Hinton, large black-seeded white; Margaret Atlee, rose-pink on cream; Royal Purple, rich true purple self; Wedgwood, light blue self; Orchid, the best lavender self; Barbara, rich salmon self; Illuminator, salmon-cerise.

Types for the Southern States, etc.

IN FLORIDA, and locations having a similar climate, Sweet Peas should be sown during the last week in September or

quite early in October, and by using the *Early Flowering* Spencers, flowers may be had from Christmas until May or June. The summer-flowering varieties sown at the same time, will not flower until April. Therefore for all tropical or almost frostless locations the new early or long-season varieties only should be used.

The new earlys are also the most dependable type for California, where in some sections, sown in September, they have been had in flower by Thanksgiving. A few degrees of

frost may check the plants and stop flowering, but they very quickly break away again, even if the leading flowering shoots may be spoiled, fresh growth is soon made to take the place of the destroyed parts.

This new type is now being grown almost exclusively in Australia, where they bloom during the cool winter months. In fact, by using these varieties, Sweet Peas may now be grown to perfection in many countries where the older type was practically valueless.

How Budding and Grafting are Done WM. H. WOLFF

HERE IS A MEANS OF INCREASING SPECIALLY GOOD VARIETIES OR WORKING OVER POOR BEARERS WITH BUDS FROM FRUITFUL TREES

THE simple art of budding and grafting, one of the fundamentals of modern horticulture, is seemingly a deep mystery to many people. By it we reproduce readily, easily and in any quantity many varieties of fruit and ornamental trees and plants which cannot be readily secured in any other way. It is perfectly practical for the home gardener to in this way increase the plants that best suit his purpose. There are

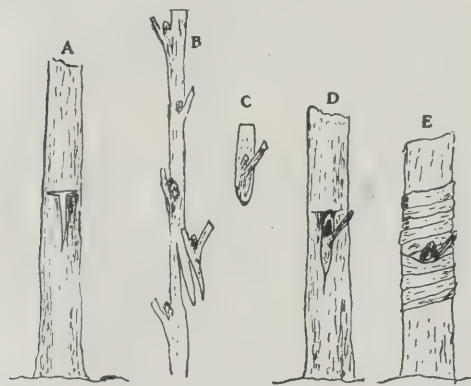


Fig. 1. The process of budding, which differs from grafting only in the fact that a single bud, not a short twig is used. (See text for references.)

two general methods of propagation: 1, Growing from seed; and 2, Taking pieces from the original seedling tree or plant and growing these pieces.

Budding and grafting is the practice of the second method. Seed propagation is usually easier and therefore cheaper and so is commonly used where only species or type characters are sought. Hence we propagate from seed the wild forest trees and plants, for example, the American Elm, the Silver and Sugar Maples, wild or species types of Roses, and many of our shrubs. A thousand American Elms grown from seed will show many individuals differing quite a little from the others, yet they will come near enough alike for all practical purposes. The same is true of the other wild trees and plants in which the type characters only are sought and considered.

In the case of our modern varieties of fruits, the case is altogether different. The first chief reason for noticing, saving and cultivating these was because they had varied so much from the general type and were so distinctly different from the general run of their seedling fellows; and these (the product of great variations from the type) possess thus inherent tendencies to vary. There are ten main characters of tree and fruit in which we

naturally would look for and notice variation, these are: *For the tree:* hardiness, vigor, productiveness, susceptibility to disease. *For the fruit:* size, form, color, quality (including flavor and texture, of the flesh), season of ripening, uniformity of crop. So, given a tendency to vary, and so many characters wherein a slight variation would make a large and noticeable difference, and we have the explanation of why we cannot resort to seed for the propagation of our cultivated varieties.

When seeds will not reproduce with certainty the qualities of the individual we desire to propagate, the only way is to take pieces of the original tree or plant and make these pieces grow, on their own roots if possible, or if these pieces do not have own roots or cannot make roots for themselves, we must provide other roots for them. Many plants can be so divided up that each part has a piece of its own root to start with, as for instance a Rhubarb plant; Gooseberry, or Spirea bush, about which the soil has been banked for a season. Some Roses and Grapes may also be propagated in this way. Other plants, such as Willows, Poplars, Grapes, Currants, many shrubs and soft wooded plants generally have the ability to make roots readily themselves from stem cuttings; and where this is the case the use of cuttings is the accepted method of propagation.

Apple, peach, pear, plum, and cherry trees cannot readily be grown from stem cuttings, or cuttings from terminal growth. We therefore provide other roots on which to grow the pieces or cuttings of the desired variety. This is grafting, which includes budding, or bud grafting.

Budding is to be Done Now

PRACTICALLY all the stone fruits, including peach, plum, and cherry trees are propagated by budding; about one half of the apple and nearly all the pear trees offered by the nurserymen are propagated in this way while the balance is obtained through root grafting.

Budding is distinctly a summer process and in the North is done during the months of July, August, and September. This is the time when the buds for insertion are fully enough developed and when the trees are making a vigorous growth so that the bark separates readily from the woody tissue below it. Terminal shoots from the current season's growth of the varieties desired are taken and with a sharp, thin bladed knife, the leaves are trimmed off, leaving back of each bud about one quarter inch of the leaf stem. This

serves as a handle for the bud later when it is being inserted. These "bud sticks," after being collected and prepared in this way, may be kept a short time if packed in damp material, such as sphagnum moss.

With our outfit now ready including bud sticks, sharp knife and some pieces of string or raffia cut into lengths of 18 or 24 inches, we proceed to the place where some little seedling trees are growing and which are to supply the necessary roots. Taking the first tree to be budded a T shaped cut is made, usually on the west or northwest side of the stem and about two or three inches up from the ground. The perpendicular cut is made first and then with a slight rocking motion of the knife blade, the horizontal cut is made, the flaps of the bark being at the same time thrown slightly open, Fig. 1-A. The bud with its bark and bit of leaf stem and without any woody tissue is now cut and pulled from the bud stick, Fig. 1-B, and slipped into the incision under the bark flaps on the seedling tree, Fig. 1-D. If the trees are in the right condition there will never be any trouble in getting the buds to slip in readily and easily. If the bark has to be pried up in order to get the buds in, the seedling trees are not in the best condition to bud and a large percentage of failures may be expected. The under-side of the bud rests on the cambium, or slippery layer, of the stock and it is from this that new cellular tissue is developed, which heals the wound and unites the bud to the new tree on which it is to grow.

After the bud has been placed in position, the flaps of the T cut are bound down tightly over it with a piece of string or raffia, so making practically an airtight joint, Fig. 1-E. In about two or three weeks the union ordinarily will be complete and the string or raffia must then be cut to allow for the growth expansion of the stem. The following spring the seedling stem is cut off about an inch above the variety bud and as the season advances this alone is allowed to grow, all other seedling suckers—i. e. those that start below the variety bud—being kept broken off.



Fig. 2. Root grafting, a method commonly used for certain fruits and ornamental trees. A, Scion. B, Stock, a seedling topped and trimmed. C, Scion and stock cut for whip and tongue graft. D, graft made and tied

Grafting for Winter and Spring

GRAFTING is usually a winter or spring process. Root-grafting of apples is commonly done in January or February. The variety scions of wood of the previous season's growth are gathered in early winter and the seedling trees or "stocks," as they are called by nurserymen, are dug at this time and both are stored in damp sand or boxes of slightly damp hardwood sawdust in a cold cellar until they are wanted.

A whip or tongue graft, as shown in Fig. 2, is used largely in the propagation of apples. These whip grafts are usually made with a three inch piece of scion and a whole seedling root or sometimes only a piece of seedling root, two or three inches long. The value of the whole-root grafted trees versus piece-

root grafted trees has been urged and exploited for many years in the nurserymen's catalogues. For the first year, the whole-root grafted trees may grow a little faster than the piece-root grafted ones, since they have a little more root to start with, but in my observation, in a season or less the latter are as large, as vigorous and quite as satisfactory and after a short time the two kinds cannot be told apart. The grafts after being made as illustrated in Fig. 2 are wrapped with string—usually waxed—and packed in boxes of sand or hardwood sawdust and again put in the cellar to callous till planting time in spring when they are set out in good, rich soil, being set usually so deep that only the top bud of the scion projects above the ground.

For top-grafting the old-fashioned cleft

graft is the most satisfactory. The best wax we have found is made by melting together:

4 pounds	rosin
2 "	beeswax
1 "	tallow or linseed oil

This, when melted, is poured into cold water and after slightly cooling is pulled like candy until it acquires a grain when it is wrapped in waxed paper and laid away until wanted.

The process of budding and grafting as explained above are similarly applicable to all kinds of ornamental trees and shrubs, with certain special modifications that experience may suggest. The same principles apply of course when grafting or "working over" the top of an old tree, for the basic principle is constant.



In the mixed herbaceous border for color



For semi-formal effects near the house

Plant Peonies in September

A FEW PRACTICAL SUGGESTIONS FOR THE USE OF THIS
SPLENDID PERENNIAL



Lift with plenty of roots



As a solitary clump in semi-shade



Division into pieces is easy

Handling Gallinaceous Fertilizer in a Practical Way

SHERMAN R. DUFFY Illinois

WHEN THE HUMBLE BARNYARD HEN PLAYS A COÖRDINATE PART WITH THE BELLIGERENT GARDEN CRAFTSMAN

BY WAY of introduction, the writer of this malodorous essay is his own gardener and any work done in his garden must be done by himself or by volunteer assistants—not always as helpful as enthusiastic. There are hundreds of thousands of citizens in the same predicament, more thousands this year than ever before. Since the Pilgrim Fathers laid the foundation for Plymouth Rock hens, there never has been such a wholesale horticultural attack upon the soil and there doubtless never will be in the history of the world so many dismal failures in a seemingly simple enterprise.

The chief cause for the many disappointments which I foresee in the vast army of new gardeners is the lack of fertilizers to be applied to the soil and a lack of knowledge of just how and when to apply them. Fertilizers are the most expensive item in the foundation of a garden and it is upon this uninspirational but essential subject, this unæsthetic, unbeautiful and unfragrant necessity and the cheapest way for the owner of the small garden to secure results that success depends.

The humble hen, no matter how barred her pedigree may be by barnyard mesalliances, producing her fruit at war time prices of five cents per fruit is a valuable asset for those fortunate enough to possess room to accommodate this gold bearing fowl who is making the fabled goose almost a reality.

But it is not with that high priced delicacy, the egg, that the gardener need concern himself so far as the cackling denizen of the barnyard is concerned. Horticulturally her exclusion from the garden is the main care owing to the speed and diligence with which she can destroy growing things. Nearly every one who has room for even a small flock of chickens has room for a small garden and the relation between the two is close if properly established. The hens can furnish sufficient fertilizer to speed the growth of vegetables or flowers during the entire season if properly used. It is becoming more and more difficult to secure barnyard manure, either cow, sheep, or horse manure to dig into the soil to supply humus and plant food or for mulching. Where a few years ago any one who wished could secure as much manure as he needed for the hauling or at a most nominal sum, now if it can be obtained at all, it is at a good round price.

To buy commercial shredded cow manure or pulverized sheep manure at the current rates of \$1.85 per hundred pounds is an expensive proposition. The commercial manures do not add the humus and texture to the soil.

FIGURING on the agricultural reports and making allowances for the enormous and in some cases prohibitive increase in cost of many of the elements entering into the balanced fertilizer, some of which such as the salts of potassium—muriate or sulphate—which formerly were spread over the Daffodil beds, cannot be secured at all, a flock of fifty hens provides in the neighborhood of \$75 worth of fertilizer in a year. This is estimated on the basis accepted some four or five years ago that 1,000 pounds of hen deposited a cash value of \$58 in fertilizer per year, an average sized fowl of the commoner types such as the Plymouth Rocks weighing from five to six pounds.

These figures under present conditions must be greatly increased and I am told that \$75

would be a very conservative estimate, as a matter of fact a precise estimate being uncertain, one authority declaring that the value of fertilizer has doubled at least in the last five years. However, be the figures what they may, the hen is a valuable asset for the gardener, a saving in cash in fertilizer alone.

Poultry manure is strong in plant food, but owing to the amount of ammonia generated it is difficult and dangerous to use it directly as it burns vegetation and cakes and hardens the soil and when dug into the soil is likely to scorch and destroy the young and tender rootlets. It is deficient in humus so there is nothing to be gained by digging it into the soil. How then can it be used to advantage? First and foremost, as a liquid manure. There is no better "tea" for the garden. Second, in compost with leaves, lawn clippings, dust, sawdust, land plaster, or in any combination that renders it dry and subject to thin spreading or mulching.

THE proportions which seem to furnish a liquid manure of the right strength—or more accurately, right weakness—are two pecks of poultry manure to one barrel, 31 gallons, of water. A molasses, kerosene, vinegar, or whiskey barrel may be secured from the grocer or druggist. Here again the H. C. L. rears its hydra heads. The groceryman formerly would present me with a couple of barrels without feeling himself at all generous. Now he has the gall to ask five dollars apiece. You can buy a steel tank for that.

Usually, I have had kerosene barrels. In order to eliminate the oil, drop a handful of straw into the barrel, light it and let it burn until the interior of the barrel is slightly charred. It will not only eliminate the oil but prolong the life of the barrel. Have an old carpet, rug, or something of the kind to drop over the top of the barrel when the conflagration is deemed sufficient.

While there are patent infusers on the market in which women and delicate men may assemble the manure to be placed in the barrel, they, too, add to the expense of gardening without contributing anything extra in the way of efficiency. A gunny sack does as well and can be procured for almost nothing.

Into this sack drop the two pecks of manure and then either drop the sack to the bottom of the barrel or better yet suspend it upon a wire or wooden hoop which may be fastened across the mouth of the barrel. Fill the barrel and let it stand a week. It really needs two barrels to alternate. Draw off the water which will be a light brown in color and apply it to the vegetables or flowers needing it. It will speed those that need and like rich feeding.

The most convenient way for arranging the barrel is to mount it on blocks, bricks, or boxes at a sufficient height to permit a wooden faucet to be inserted near the base with sufficient clearance for a watering can. This is a great labor saver and convenience as it is no joke to hang over the sharp edge of a barrel in order to dip up the water when the cask is more than half empty.

IN APPLYING the liquid manure it is best to moisten in advance the plants to be fertilized. This makes the liquid manure more quickly available and better distributed through the soil, going directly to the roots.

"Weak and often" is the motto for liquid manures. Once a week is often enough at most for the solution I have described here. It is particularly valuable for Roses when they have reached the bud stage and should be applied every two weeks early in the season and every week as the weather becomes hotter and more trying for the plants.

It is likewise excellent for onions in limited quantities. As a war measure, I am growing onions and Roses in the same bed. Soil that will grow good Roses will likewise grow good onions, and as this was the only soil I possessed that seemed likely to present me with good onions I double cropped it. At this writing I have plucked beautiful salmon pink Madame Leon Pain Roses and luscious young onions side by side. Both contribute to the lowering of the cost of living and to the joys of life in their peculiar spheres.

My onion-rose bed is the subject of much mirth and bromides concerning fragrance have turned to a stench in the nostrils. The combination works. The Onions and Roses are flourishing mightily. They do not interfere with each other and the appearance of the bed which is fifty by four feet does not suffer.

I have used liquid poultry manure upon cucumbers, squashes, and melons with excellent effect. Likewise upon Asters. Do not feed tomatoes; they will develop an excess of foliage and deficit of fruit.

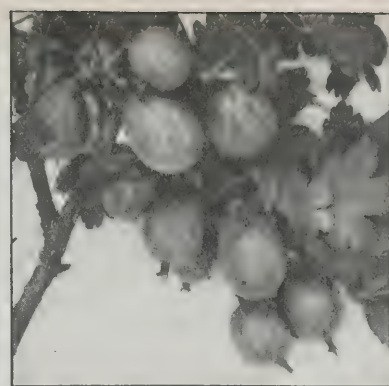
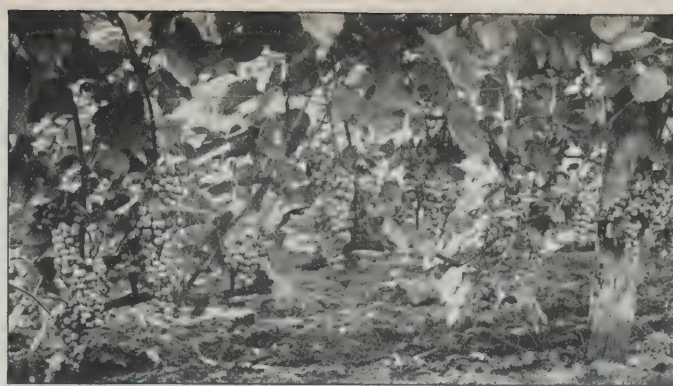
THE only use I have found for poultry manure in bulk is upon the asparagus bed in the fall and winter. The asparagus roots are too far down and too strong to be injured while they respond gratefully to the extra food which seeps down to them. In the spring it should be either removed or spaded under as the heat is then gone from the manure.

The main problem is how to reduce poultry manure to a fine enough consistency to sprinkle it thinly or to combine it with some humus-producing medium so that it may be dug into the ground. In the first place, to secure the manure in condition to handle it readily, a substantial covering of dust, sawdust, straw, or dried lawn clippings should be spread upon the dropping board under the roosts. It should be removed at least every two days and placed under cover where it may dry. Frequent turning will break it up into fine enough condition.

An ingenious acquaintance had a bone grinder which he was not using for its original purpose and thought it might be a good idea to run some of the dried and crusted poultry manure through his mill to get it into condition to sprinkle. Unfortunately, he overlooked the fact that gravel is an important item in the dietary of the fowl and what happened to the mill when it hit the gravel in the manure spoiled the experiment.

However, the liquid manure is so much more efficacious and easy to handle that it is hardly worth while to try to use poultry manure as a mulch or to dig into the soil if any other source of humus and plant food is available.

After spreading the dry manure and either sprinkling it into the soil or allowing a rain to fulfil the same mission, the soil should be hoed. If left as it lies, it produces a hard, caked surface. It must be used very sparingly and care must be taken not to spread it too close to the stem of the plants.



Currants, grapes, and gooseberries are three timely suggestions for fall planting. Set out all possible food crop plants this fall

Plant Now—or Wait Till Spring? M. G. KAINS

RELIEVE THE SPRING PRESSURE OF TILLING AND PLANTING ANNUAL FOOD CROPS BY STARTING NOW WITH FRUITS, BERRIES, AND MOST ORNAMENTALS

ONE of the greatest advantages we gained by planting last autumn was getting the work done when other matters were not nearly so pressing as they were in the spring. Had we not planted in the fall it is very doubtful if we would have anything like as good trees as we now have. The fall set trees started into growth promptly and kept the lead all through the season. To be sure a few besides the clipped ones died and had to be replaced, but it is one thing to *replace* such trees and quite a different one to set out a whole planting. The former may be done much more quickly because there is no time lost determining the positions for the trees.

Another point strongly in favor of fall setting is the fact that the trees are dug only a few hours or days before being reset in the ground. They are therefore more likely to be in prime condition than are the majority of trees sent out in spring by nurserymen. This remark applies not to trees freshly dug in the spring but to those trees stored in "cellars" over winter. Whether stored in sand, sphagnum moss or "stacked up like cordwood," experience goes to prove that nothing compares with the newly dug tree. We had trees delivered last April, some of them stored in each way. Our results favored the spring dug trees in every case. The next best results were with trees stored over winter in damp sand. In the cases of nursery stock "stacked up" in the storage house we lost heavily, some of the trees being so badly shriveled that in spite of soaking root and top in water for more than a day—a good practice where the trees are at all dry upon receipt—we lost more than 50 per cent. and many of the balance will make poor trees. The nurseryman volunteered to replace this part of our order next spring. But we have done our planting for nothing, and lose a year because of the faulty method of storage. Here, then, is a good rule: *Before ordering nursery stock for spring delivery find out whether it will be spring dug, or if stored, how handled.*

What and When to Do, or Not

THE seasons of 1916 and 1917 gave us all of the 57 varieties of experience in tree and bush fruit planting. Some of these varieties were already well known to us but others were brand new and interesting from a practical standpoint. I, therefore, believe that readers of THE GARDEN MAGAZINE will

find a rehearsal a good guide as to what to plant, what not to plant, when to plant and when not to plant in this period of food urgency. Parenthetically let me say that when I use the word "we" I am referring to the experiences in two business orchards or small fruit plantations. Planting on my own suburban lot is thus kept distinct from the other work.

We ordered stock in October from five different nurserymen, all in Western New York, not that the New York nurserymen have better stock than others but solely because

most immediately after the receipt of our order. When the trees arrived we found that all the peaches of certain varieties had had their leaves clipped off and were already beginning to shrivel. I predicted serious loss among these plants, and sure enough when spring opened the majority died. In some varieties the loss was one hundred per cent. It is only fair to state that when the nurseryman was told of our ill success he offered to replace the trees either this fall or next spring as we may decide. This is all that any could expect under the circumstances, but we have lost a full year and have started with an irregular or ununiform orchard. So here is an important deduction for the reader to draw: *When ordering nursery stock for fall delivery insist that the trees drop their leaves naturally.* Be willing to wait until they do; for it is better to plant a well ripened tree even very late than to risk loss by planting earlier one that is immature. This rule is general, that is, it applies to all fruit trees and shrubs.

In all but one case our orders called for one year peach trees and not older than two year trees of other fruits. That one case was an accident: the specification of age was omitted. The nurseryman sent trees as old as four years in some cases. If these had been systematically root pruned each year, as is general in the production of specimen ornamental evergreens, to produce abundant fibrous roots they would have been splendid though costly. But they had not been so treated. They had either large roots fearfully mangled in the digging or in some cases the roots were so few and small that it seemed almost incredible that the large tops could have been produced and supported by them. The tops too (many of them) had badly placed branches which had to be removed, so the head of the tree could be made the proper height from the ground and the branches the right distance apart on the trunk. The result was a large number of big wounds. After this pruning was done the trees in many cases were unsightly, partly for this reason and partly because the breakage and removal of twigs left the main branches bare for considerable areas. But the worst is yet to come: those trees will never make as sightly, productive, healthy, hardy or in any other way satisfactory trees as younger trees have always made with less, far less attention both before but especially after planting. So here's the second rule the reader may write in his memory: *Insist upon having young trees unless*

Six Reasons for Fall Planting

¶ Newly dug trees are decidedly superior to stored trees, no matter how good the storage.

¶ When orders are placed late, it is a good plan to furnish a substitute list so the nurseryman may choose from this in case he has run out of the most desired varieties.

¶ The most important risks run in fall planting are danger of winter injury due to poorly drained land—and the gnawing of the bark by mice and rabbits.

¶ Heeling-in nursery stock is a thoroughly satisfactory way to store trees to be set in the spring, because you are not dependent upon the transportation companies at planting time.

¶ Early fall ordering is important, for at no season of the year is one so sure of getting exactly what he wants both as to variety, size, and age. In spring the nurseryman may be sold out of the very things you need most.

¶ Fall planting has the great advantage that the work is done and out of the way when time is not at a premium. Furthermore, most fruit trees and deciduous ornamental shrubs do better when fall planted because they get an earlier start than do spring planted ones.

we knew them personally or because they had the varieties we wished to plant. One of these men wrote that he thought it unwise to plant peaches in the fall, that he would advise his holding that part of the order until spring but that if we wished he would send the trees after the leaves dropped which would probably be about November first. As a matter of fact, it was about November 20th before the trees reached us. But such trees! Ripened to the very tips and branched almost the full length of the trunk. Except for one or two that were injured in transit every one of those late planted trees is doing well to-day.

Another nurseryman made his shipment al-

the older ones have been root pruned and discount 100 per cent. any thought that the older trees will bear earlier; for ordinarily handled nursery stock will not bear satisfactorily as soon and the tree will always be less plastic—can't be as easily trained. A few dealers have specially grown large trees however.

Cut Backs Declined with Thanks

ONE nurseryman wrote that he couldn't supply two-year apple trees of certain varieties but that he could send "cut-backs." We declined with thanks; for every nurseryman who will give his customer a chance to decline deserves to be thanked. Why? Because cut-backs are inferior trees. The first season in the nursery they are small, the second year they still do not reach the standard sizes suitable for sale, they are inferior in other ways or they are some the nurseryman has failed to sell. They would grow too large if left to continue growth next year so the nurseryman cuts them back to the surface of the ground. This results in forcing a strong shoot which in a single season produces a more or less sturdy and attractive looking top. But the roots, the important part of the plant, are then three years old and therefore must suffer severe injury when the trees are dug—often as severe as a three year tree suffers unless previously root pruned. As the nurseryman was willing to send one year trees of the varieties desired so the order was filled to our satisfaction. The third rule is obvious: *Never order or accept a cut-back tree because it was either a cull to start with or it was unsalable the previous year, both of which points are sinister.*

What Age of Tree

PRACTICAL fruit growers have less dispute than formerly as to the age of a tree for planting. All now agree that fruit trees more than two years old are undesirable for reasons already outlined. They also agree that peach trees should never be older than one year from the bud, for a similar reason. The only discussion one hears now is as to the relative value of one-year and two-year trees. Among the reasons for choosing one-year in preference to two-year trees the following are most important: They cost less; being smaller the express or freight charges are less; none but well grown sturdy trees are of salable size at the end of one season's growth, so there is no danger of getting runts or culls of the previous season; one-year trees have few, and small, or no branches so the head may be formed exactly where the planter wants to have it, high, low or medium, often without any pruning and



Ornamental shade trees and vines for the home and all hardy perennials for the border should be set out this fall to leave time free for food crop planting in spring

possibly consequent injury to the tree. The last point is more important than at first may appear because once having formed it is difficult to change the head.

Trees once headed high should be allowed to so develop because the new branches forced to develop by cutting off the first to form are almost sure to come irregularly anywhere on the trunks and to produce misshaped trees.

Most important point of all, however, is that one-year trees will transplant with greatest ease, least work, and most assurance of success, especially in the hands of an inexperienced planter.

Our experience in planting last autumn bears out that of other planters in being able to get the varieties we wanted. Only one of the nurserymen was sold out of one variety, whereas when we placed our much smaller spring order each of the three nurserymen we then patronized had no trees left of two to five varieties we wished to plant.

Things Best to Plant

THERE are some plants that should always, if possible, be planted in the fall; others must not. Among the former currants and gooseberries are conspicuous and ornamental shrubs (such as Lilacs) which ripen their wood and drop their leaves before mid-autumn and start to grow very early in the spring—grape vines also. *The sooner such things can be planted after their leaves fall the better.* If planted in the spring after the buds begin to swell or the leaves form they are sure to suffer more or less. Among the plants that probably are best not fall planted the most prominent are blackberries, dewberries and raspberries (especially blackcaps) red raspberries can be fall set on well drained land. The autumn before I arrived one of my clients set out a plantation with the result that with some varieties (blackcaps in all cases), not a single plant survived the winter. In other cases the losses ran from 25 to 75 per cent. The ones that suffered least were the Golden Queen raspberry plants. This is a yellow-fruited red raspberry! The loss in this case was only 5 or 10 per cent. It has been easy to fill the vacancies because the red raspberry makes numerous sucker plants from the roots.

As to grapes my own planting has turned out very well, no fall set vines dying from any but accidental causes. The plantings for one of my clients underwent a series of very severe tests, so did the gooseberries and currants which formed part of the plantation. They were exceptionally well planted last fall, but during the winter plans were changed and a sudden order given to have them removed.

They were dug on an April day when a gale was blowing. Each vine was temporarily heeled in where it stood, a couple of shovelfuls of earth being thrown over their roots. Before they could be collected and bundled for better heeling in a snowstorm buried them. Then without warning motor trucks began driving over them delivering hardware and glass to build a greenhouse. They were collected—such of them as were uninjured and could be found. After being bundled and heeled in several weeks elapsed before they could be planted, unfavorable weather preventing the preparation of the land. And yet the losses were only about 15 or 20 per cent. of the original number.

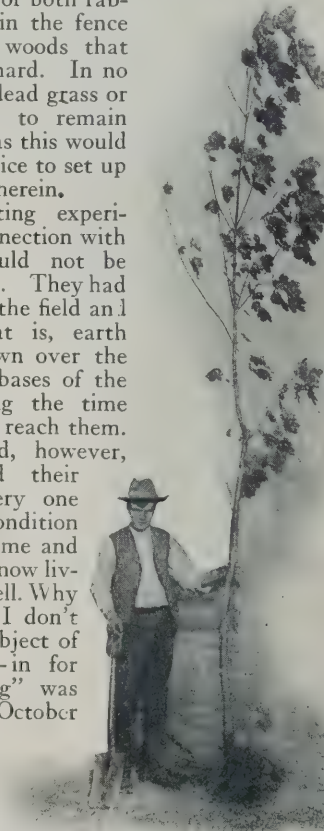
This shows how serious abuses certain plants will stand; for by knowing of such experiences the beginner may take heart and promise himself good results if he will only do the work properly.

Now the Disadvantages

AMONG the disadvantages, not already touched upon, that we weighed before planting in the fall are the following: we had to run the risks of winter injury due to alternate freezing and thawing with consequent heaving and settling of the soil. With fall set trees this is more likely to occur than with spring planted ones. But as our soil is well drained we felt that the risk was slight, and experience so proved for we lost only one or two from this cause. Another risk is the possible damage by mice and rabbits. But half inch mesh hardware cloth protectors were used on some of the trees; "sulfocide" on others. Not one tree was barked but this may be because of the abundance of food for both rabbits and mice in the fence rows and the woods that border the orchard. In no case was any dead grass or straw allowed to remain near the trees as this would have invited mice to set up housekeeping therein.

One interesting experience was in connection with trees that could not be planted last fall. They had been taken to the field and heeled in—that is, earth had been thrown over the roots and the bases of the trunks—pending the time when we could reach them. Winter arrived, however, and prevented their planting. Every one was in good condition when spring came and all but one are now living and doing well. Why that one died I don't know. The subject of "Fall Heeling-in for Spring Planting" was discussed in October 1916, page 102.

Don't be in too much of a hurry. Wait till the leaves are almost ready to fall.



Evergreen trees and shrubs are safely handled in early fall or when the ball is frozen

"Pay Your Money and Take Your Choice" F. M. THOMAS

Pennsylvania

CONTINUING LAST MONTH'S APPRAISAL OF RECENT OFFERINGS OF HARDY PERENNIALS FROM AN AMERICAN GARDENER'S VIEWPOINT—PLANTING CAN BE DONE THIS MONTH

FEW perennials give a more imposing effect in a flower garden, than a well-grown clump of *Helenium*, either *rubrum* or *Riverton Beauty*. I acknowledge that the striking and unique color of *rubrum* is a rather hard one to work into a definitely planned garden, but well placed it is a joy, and in any case there is always the shrubby border to fall back on. Any one who has seen a Wallflower can easily form an idea of the color of *rubrum*; a rich terra-cotta red, fading to a sort of burnt orange, a much purer and warmer shade than the older *Riverton Gem*. But it must positively be grown in full sun; even a little shade will metamorphose it to a dull bronzy yellow. *Riverton Beauty* is the richest lemon, with a brown-black centre, a far superior plant to the original *H. autumnale superbum*, though not growing quite so tall. I have sometimes wished that these *Heleniums* might bloom a little later, so as to be in harmony with the glory of the autumn colorings they so much resemble.

SOME *Day Lilies* (*Hemerocallis*) deserve attention; *Queen of May* and *citrina*. The latter is a most interesting plant. The long slender flower stems rise four or five feet high out of a mass of the most gracefully arching, narrow, fountain-like foliage imaginable. The flowers themselves are the palest lemon, tinged green on the outside, trumpet shaped, not widely expanded, and with very long, narrow petals. And their fragrance is delicious, probably finer than that of any other *Hemerocallis*. *Queen of May* is a plant of a very different sort, with coarse strap-like leaves, and sometimes as many as twenty flowers and buds on its stout branching stems. The flowers are funnel shaped, widely open; of a uniform deep chrome yellow. With me the plant has a second blooming season in late September or October and then the stems are much taller, some of them over five feet, but the flowers are sometimes so late as to be injured by the early frosts.



Among the improved Sneezeworts (*Helenium*) is *Riverton Beauty*, rich lemon yellow with centre of brown black

H. Middendorffiana also blooms again in the fall, and occasionally, if the season has been a rainy one and the ground is rich, *luteola*, *apricot*, and *aurantiaca* will do the same; *luteola* is one of the finest pure yellow *Day Lillies* I have grown, only surpassed by *aurantiaca major*, which, however, is not entirely hardy here.

EXCLUDING Perry's White, the *Oriental Poppies* I mention are not very new. Nevertheless, they have become known surprisingly slowly, considering all their very apparent good qualities. Surely now that we have so many and such exquisite shades, it is about time to permanently discard the old *P. orientale*, with its glaring shade of brick-red. Of real scarlets we now have several; *Beauty of Livermere* (very dark), and *Goliath* (lighter), are all that could be wished. And of the salmon pinks there are a host. Mary Studholme, Mrs. Perry, Jennie Mawson, Princess Victoria Louise and Princess Ena are some of the best. Though there is not a great deal of difference on the whole, each one has its little point of distinction. Mrs. Perry is probably the largest and the most intense salmon; Princess Victoria Louise is a shade paler, with petals more numerous and more ruffled; Mary Studholme has a silvery tone, and Princess Ena is small and tulip shaped. To my mind Jennie Mawson combines the most good qualities, both in color and habit; *Silberblick* is a freak flower, with white spots instead of black ones, but the color is not attractive. The same is true of *Semi-plenum*, which, as its name implies, is partly double. Perry's White is a most curious and handsome flower. It has been described as "satiny white," but to me "paper white" would seem nearer right; certainly its texture distinctly suggests that of paper, rather coarse tissue paper, slightly crinkled. The spots at the base of the petals are really deep maroon, but they appear black, and there is something about the total absence of color that at once recalls a Japanese print. No doubt we can make very striking garden pictures with this variety, as it becomes better known. *Silver Queen*, another white, is of a different tone, a gray-white, or rather a lavender-white, if

such a term could be used. With its dwarf, slender growth, *Silver Queen* very much resembles an enlarged *Shirley*. *Mahoney* is unique; a very deep maroon red, like an ox-heart cherry. Nothing could be more effective with the salmon and white varieties.

OF THE new *Phloxes*, three seem to me of first class quality Thor, W. C. Egan and Tragedie. *Tragedie* (described as "carmine"!) is a pure deep scarlet, a scarlet with no hint of yellow, as in *Coquelicot* and its derivatives. For those who love brilliant and intense color effects, it should prove a great acquisition. Unfortunately it is not quite so robust a grower as some of the newer kinds. W. C. Egan has been described as "mauve," which gives no idea whatever of its clear, cool pink, a pink with less lilac in it than Mme. Paul Dutrie, but nevertheless inclining to the blue rather than to the yellow end of the spectrum. It has a centre of deeper, cherry pink, and the flowers and trusses are of unusually large size. Thor is the best deep salmon pink to date; a shade of the greatest richness, several degrees deeper than Elizabeth Campbell, but still distinct from the salmon-reds of varieties like Baron von Dedem or Gen. Van Heutchz. Thor also has blooms of splendid size. Happily the incomparable Elizabeth Campbell needs no recommendation; it has already become the most popular of *Phloxes*, and with good reason, possessing, as it does the most charming warm pink of any hardy plant. Asia, Africa, and Australia make an imposing appearance in some lists of novelties, but I am sorry to say that all three of the nations were a decided disappointment to me. Asia is of a rather muddy shade, Australia verges on the magenta, and Africa is a trifle harsh and crude, though by far the best of the three. One plant that should be welcome in every garden is the Perry's Variety of *Phlox divaricata*. Contrary to catalogue opinion, I pronounce it a distinctly paler shade of lavender than our native *P. canadensis*, but its flowers are so much larger, its habit so much



The Lemon-yellow *Day-lily* (*Hemerocallis citrina*) is one of the newer Chinese real acquisitions. Fragrant flowers on five foot stalks



The Pale Blue Sage (*Salvia azurea*) though not new is a practical novelty to many. Useful both for border and cutting

better and its lifetime so much longer that it easily outranks that. From early May to the last of June it is full of blossoms. As a setting for pale yellow or old rose Tulips, or combined with Irises, such as *Flavescens* or Mrs. Alan Gray, it is perfect.

Perry's Variety, I understand, was one of the parents of the new *Phlox Arendsii*, a distinct race that has attracted a good deal of interest, and of which *Charlotte*, palest lavender; *Louise*, lavender with a darker eye; *Grete*, white; and *Helene*, much like *P. divaricata*, are all most promising plants, with semi-dwarf, branching habit and a very long season of bloom, beginning in May. The rest of the *Arendsii* varieties seem to me too uncertain and washy in color to be of much value.

IN SPITE of its cumbersome name, none of the newer plants possesses a more distinct and delicate charm than the *Thalictrum dipterocarpum*. Its foliage is in the same decorative, maiden-hair-fern style of all of its genus, but the flowers are totally distinct. The panicles of bloom are pyramidal in shape, tapering to a tip of undeveloped buds. The tiny flowers are suspended from thread-like stems, their soft lavender petals reflexed to show the fluff of pale yellow stamens below. The little round buds at the tip of the spray look like a shower of falling water-drops; buds and stems alike are tinted the same soft lavender. The

whole plant has an effect that is indescribably airy and delicate. My plants have not grown taller than four feet, but perhaps when well established they will attain the six credited them by the nurserymen. The one drawback is its sensitiveness to our damp and rainy winters. Cold seems not to affect it, but poorly drained soil is generally fatal. Therefore, I advise wintering it over in a frame.

OFTEN I have wondered why *Salvia azurea* is not better known. Its lovely soft blue flowers are splendid for cutting, and invaluable in the garden at their season. Perhaps now that the rather more showy *Pitcheri* has appeared it may help to bring more appreciation to the older but equally good type. The relation between the two is exactly that between the *Anchusa Opal* and *Anchusa Dropmore*. *Pitcheri* has very fine deep blue flowers, perhaps just a trifle smaller than *azurea*, and its season of bloom is two weeks later, extending into October. These *Salvias* should be given full sun, and, like *Chrysanthemums*, be pinched back at least twice during the summer.

The new *Salvia Greigi* has the same lip-like formation of flower as *azurea* and *Pitcheri*, but its color is a delicious soft cerise, very much resembling that splendid *Phlox*, Sigrid Arnoldson, or a newly opened Laurent Carle Rose. The plant is really a miniature shrub, about two and a half feet tall, with small, rounded,

strongly sage-scented leaves. If the number of its flowers was in proportion to the length of its blooming season, it would be invaluable; as it is, not enough flowers open at a time to make a very showy effect, though there are always more or less, from June to October, except for a short rest in August. It seems to be at its best in September, when, for a few days it quite covers itself with glory. *Salvia virgata nemerosa* is also a wonderfully prolific bloomer, though to insure this, the old flower heads must be religiously cut off. Its rich violet blossoms contrast well with the reddish purple bracts out of which they appear, but the plant is of no particular grace or distinction of habit. Perhaps the least attractive of the four *Salvias* is *uliginosa*; which is a great pity, as it is quite the most rampant grower I know of in hardy plants. Tiny seedlings, set out in July were by October big plants three and a half feet tall by two feet broad, and with dozens of flower spikes. These are very similar to *azurea* and *Pitcheri*, but the flowers are only about half as large, and not many open at once,—which again is a pity, as they are of a very pretty clear blue, with white markings. However, a mass should make a very good appearance in some corner of the rougher part of the garden, where their underground stems can spread at their own sweet will. In spite of its rampant growth, *Salvia uliginosa* is of doubtful hardiness north of Philadelphia.

Food and Home Economies That Can Finance the War

The Food Administration Says: To Save Food—

USE THE PERISHABLE FOODS.—Fruits and vegetables we have in abundance. As a nation we eat too little green stuffs. Double their use and improve your health. Store potatoes and other roots properly and they will keep. Begin now to can or dry all surplus garden products.

SAVE THE WHEAT.—One wheatless meal a day. Use corn, oatmeal, rye, or barley and non-wheat breakfast foods. Order bread twenty-four hours in advance so your baker will not bake beyond his needs. Cut the loaf on the table and only as required. Use stale bread for cooking, toast, etc. Eat less cake and pastry.

Our wheat harvest is far below normal. If each person weekly saves one pound of wheat flour that means 150,000,000 more bushels of wheat for the Allies to mix in their bread. This will help them to save **DEMOCRACY**.

SAVE THE MEAT.—Beef, mutton or pork not more than once daily. Use freely vegetables and fish. At the meat meal serve smaller portions, and stews instead of steaks. Make made-dishes of all left-overs. Do this and there will be meat enough for every one at a reasonable price. We are to-day killing the dairy cows and female calves as the result of high price. Therefore, eat less and eat no young meat. If we save an ounce of meat each day per person, we will have an additional supply equal to 2,200,000 cattle.

SAVE THE MILK.—The children must have milk. Use every drop. Use buttermilk and sour milk for cooking and making cottage cheese. Use less cream.

SAVE THE FATS.—We are the world's greatest fat wasters. Fat is food. Butter is essential for the growth and health of children. Use butter on the table as usual but not in cooking. Other fats are as good. Reduce use of fried foods. Save daily one third ounce animal fats. Soap contains fats. Do not waste it. Make your own washing soap at home out of the saved fats. Use one third ounce less per day of animal fat and 375,000 tons will be saved yearly.

SAVE THE SUGAR.—Sugar is scarcer. We use to-day three times as much per person as our Allies. So that there may be enough for all at reasonable prices use less candy and sweet drinks. Do not stint sugar in putting up fruit and jams. They will save butter. If every one in America saves one ounce of sugar daily, it means 1,100,000 tons for the year.

SAVE THE FUEL.—Coal comes from a distance and our railways are overburdened hauling war material. Help relieve them by burning fewer fires. Use wood when you can get it.

USE LOCAL SUPPLIES.—Patronize your local producer. Distance means money. Buy perishable food from the neighborhood nearest you and thus save transportation.

Buy less, serve smaller portions.
Preach the "Gospel of the Clean Plate."
Don't eat a fourth meal.
Don't limit the plain food of growing children.
Watch out for the wastes in the Community.
Full garbage pails in America mean empty dinner pails in Europe.
If the more fortunate of our people will avoid waste and eat no more than they need, the high cost of living problem of the less fortunate will be solved.

Here's the Thing to do With the Money Saved:

BUY LIBERTY BONDS BY YOUR GARDEN.—Spending the day in a hot canning kitchen or pulling weeds in the garden is a whole lot less dramatic for a woman, than dressing up in khaki and drilling and also a whole lot more useful; and it can save the money that will send a man to the front who is proud of the chance to go and proud of the quiet services at home that save the money that gives him a chance to serve his country.

BUY LIBERTY BONDS FROM WHEAT.—Put aside the money you save on limiting your wheat diet and put it into the hands of the Government so that the men at the front will have bread and guns and airplanes and whatever else they need to win. The food you save will feed our soldiers and our Allies and the money you save by saving food, if you buy Liberty Bonds with it, will be used to give our soldiers the equipment and training to give them a fair chance in battle.

BUY LIBERTY BONDS FROM MEAT.—Put aside the money you save by a meatless meal and by your care of left-overs and save it to buy Liberty Bonds. The Government will have to borrow 12 to 15 billions of dollars every twelve months for the conduct of the war. It must get a part of it from you.

BUY LIBERTY BONDS FROM MILK AND CREAM.—What you do not use will be used by some child who would have had to do without; and the money you saved, therefore, will help save the world for democracy if you give it to the Government in return for a Liberty Bond which makes you a shareholder in the great company of democracy.

BUY LIBERTY BONDS WITH FATS, and save anything else you can. The Liberty Bonds must be bought from savings. If you borrow to buy bonds it is permanent help to your country until you have paid off the debt and then the lender can buy bonds with the money. But if you save and buy bonds you are immediately serving your country.

BUY LIBERTY BONDS WITH SUGAR.—Sugar is sweet, but life is sweeter and thousands of lives a day are lost as long as the war goes on. Give the Government all the money it wants to give our army and navy everything it needs to hasten victory and establish a righteous peace.

BUY LIBERTY BONDS WITH COAL.—Save the fuel and the fuel bills. Every ton of coal that you don't burn will buy a quarter of a ton of shipping that is vitally needed—if you save the money and give it to the Government by buying bonds.

HOW TO BUY LIBERTY BONDS.—If you do not know where or how to buy Liberty Bonds go to the nearest post office, or bank, and find out; and then see that every one else in your neighborhood knows.

Get your money ready now to buy when the next loan is issued. Keep right on saving so as to be ready for the loan after that. See that every one in your neighborhood knows when and where to buy Liberty Bonds.

THE PATRIOTIC GARDEN

CROP CONSERVATION & DISTRIBUTION

He also Fights who helps a Fighter Fight (H-Hoover)

AT LEAST SAVE SOME OF YOUR WINTER SUPPLY

MAKE YOUR GROUND WORK FOR THE FAMILY & NATION

FALL PREPAREDNESS FOR THE SPRING DRIVE

OF ALL the seasons of the year autumn is the one in which preparedness in the garden is most effective. Yet most gardeners are inclined now to rest on their laurels till next year's urge is upon them. Now, when work is slackening up and slowing down, there is a chance every day during September, October, and November to do something that will fit the soil or the plants of hardy species for next season's greater successes.

Most obvious of all autumn work is the cleaning up of debris of crops which have been harvested, and left in their wake vines, tops, stakes, trellises, etc. *Waste nothing!* All such material as will easily decay and is otherwise useless is best disposed of in a compost pile where it will decay and become available for future use as humus. As far as possible gather it while succulent rather than hard and woody because decay is quicker. Better results will also follow spreading the refuse in thin rather than thick layers because decay is more prompt and there is less likelihood of the stuff being an offensive, sticky, wormy mass of decaying vegetable matter when the time comes to spread it on the garden as a top dressing. If stalks and vines become woody place them in a damp spot and cover with earth. They will thus more surely decay than if mixed in the ordinary compost pile.

A Friendly "Compost Pile"

A FAVORITE way of making a compost heap is to place a layer of inverted sods upon the ground or a layer of weeds, stems and other vegetable remains from the garden. Upon this two to four inches of good manure is spread and sprinkled with bone meal, tankage, ground phosphate rock or any other available but rather slowly soluble fertilizer. If the soil is acid a dressing of lime is given—enough to make the surface pretty white. Other layers of sod and manure are added until the pile is finished when the form should be that of a broad letter A with the apex cut off and somewhat dished to hold snow and water. The depth of the sod layer should be governed by the character of the soil and the sod itself. If heavy loam or clay it should be shallow and about a third of its depth should be sand, sifted hard coal ashes (or other material) that will help to make it "lighter." If loamy already and well supplied with grass roots it may be four to six inches thick. Such a pile may be made in September or October for use the following fall or made in March or April to be used the following spring. In

either case it should be sliced with a sharp spade vertically downward and the slicings thrown into a new pile so that the outside of the original pile may be in the centre of the new one and thus get a good chance to decay. Soil so prepared may be sifted for indoor potting work or applied as it comes for work in coldframes, hotbeds, and garden borders. Piles may be six or eight feet wide at the base, four or five feet high, three feet wide at the top and any desired length to supply the needs of the maker.

Planting Next Spring's Greens

FOR the earliest crop of spring spinach sow in September or October. Choose the richest available part of the garden and make it even richer by a liberal dressing of well decayed manure. Dig or plow the soil deeply and make the surface fine. If the soil is somewhat heavy or poorly drained the plants may be heaved out by frost. To obviate this where there is no choice of a better location, dig a trench six or eight inches deep on each side of the bed and make the ground slope from the centre of the bed toward the ditches. These ditches should of course lead to lower ground where possible, but even where not they will be worth while. The soil from them should be thrown on the beds which will thus be raised slightly. For the overwintering crop, sow the seed in rows eight to twelve inches apart using about one ounce to each 100 feet of drill. Keep free from weeds until winter sets in, then cover with clean straw three or four inches deep. In early spring remove this straw, give a light dressing of nitrate of soda close to but not on the plants and cut the largest ones as soon as they reach edible size. Plants so grown may be used three or four weeks before spring sown seed will produce plants of edible size.



This season's harvest is nearly gathered in, but the alert gardener begins this month on rebuilding fertility for the food crops of next season. Feed the land to feed the people

Dig the Garden Now

WORK and time next spring may be saved by plowing or digging the garden now, provided the soil be left in big clods, just as turned up. If it is a heavy loam or a clay so much the more reason for fall preparation because such soils are made finer by the alternate action of freezing and thawing during winter. Still more may be done to fine them by adding much old crumbly manure, sand and sifted hard coal ashes. Another important addition for breaking up the particles is the addition of lime but this should be deferred until spring because the action of lime is downward, so more or less of the plant food might be lost if the application were made in the fall. Just before the soil is ready for harrowing or raking is the right time to scatter this material.

Laying War Plans Ahead

IF NEXT year's war garden must be made on land which has been for a year or longer in sod its success can be enhanced by plowing the face say four weeks before the ground is likely to freeze hard. Apart from the advantages of having the sod decay and the texture of the soil improve because of the action of frost upon the clods during the winter there is a great gain in the destruction of insects which feed on the grass roots and which divert their attentions and appetites to the vegetable roots when these arrive. This is the greatest advantage of fall plowing or digging sod land. Wire-worms, cut worms, white grubs and many other garden pests are now feeding within a few inches of the surface as may be proved by turning up the sod and searching for them. While fall plowing does not destroy them all, it kills enough to make it, pay to say nothing of the advantages of having the soil turned up in rough furrow slices—as the soil should be left until spring.

Roots That Will Sprout in the Spring

IT WILL take a special order to your seedsman or nurseryman to get asparagus roots in the fall, but they can be had and you will save a year by planting early this fall. Two-year old roots are the most practical size for the home gardener. Horseradish and rhubarb set out this month will be ready for use in early spring.

Lift a few parsley roots from the garden, trim both root and top—the latter to within one inch of crown—and plant two roots two inches apart in a six-inch pot. A few pots in a sunny window will give all needed parsley when snow falls.

★ Where FALL CANKER WORMS have infested apple trees or where the wingless females are noticed this autumn much may be done to prevent next spring's damage by placing bands of sticky stuff such as tar, printers' ink and "tangle-foot" around the trunks to prevent the females from climbing up to lay their eggs in the branches. Fluffy cotton batting is also useful. Late September or early October is the time to do this work. A related species, the worms of which work in the same way, may be similarly dealt with but by applying the bands when the buds swell. Spraying with lead arsenate (six to ten pounds to one hundred gallons of water) will control both kinds.

★ CUT WORMS may be made less numerous this fall and thus less destructive next spring by keeping the ground well cultivated in late and early fall so as to prevent the growth of grasses upon which the creatures feed. Where it is not necessary to have grass none should be allowed to grow. Where it is necessary, poisoned bran is effective because when properly mixed the worms will leave grass and other plants for it. A good formula is one ounce of paris green, three pounds wheat bran, mixed dry then moistened with the juice of an orange and enough diluted molasses to make the stuff "crumbly moist." Strew in little gobs beside the grass.

★ If not already done, CUT OUT ALL FRUITED AND DYING CANES of raspberry, dewberry, blackberry and all currant and gooseberry canes older than three years; the former because they will die anyway this winter and only menace the health and well being of the young canes; the latter because they produce fruit inferior in quality and size and less in quantity than do canes a year or two younger. In both cases the danger of infestation from insects and diseases is greater.

★ FRUIT-TREE-BARK BEETLES make "pin holes" in the trunks and branches of failing fruit trees. Prevention consists in keeping the trees vigorous and healthy by proper cultivation. If the trees are seriously infested cut them down, burn at once, and replace by new trees from the nurseryman this fall. It is a help to keep the fence rows clean of rubbish and to apply thick coats of whitewash or of concentrated lime-sulphur during late September, March, and June.

★ To feed VINES AND FRUITS economically, save all bones from the house and those left upon the lawn as canine visiting cards. Bury near grape vines, currant, raspberry and other bushes. No danger of getting too many. Half a peck to a peck will be a good "meal." Be sure to bury deep enough—say 15 to 18 inches. Obnoxious cats, dogs, rats, mice and other animals that eke out a precarious existence may be humanely exterminated and buried near fruit trees and shrubs. Such creatures might be obtained from local societies for the prevention of cruelty to animals and thus put to use in nature's way.

★ If the CHERRY LEAVES have been eaten out and blistered or browned during early or midsummer by the cherry leaf miner the best thing to prevent damage next season is to plow the orchard or dig beneath the trees in the garden during late October or early November so as to destroy the larvae which burrow in the ground to hibernate.

CHECKING THE INVADERS

Bugs, Worms, Rusts, and Frost

★ Mid-autumn is the time to dig out the PEACH BORER which almost always makes its burrow within six inches of the surface of the ground above, or usually below. Remove the earth gently to the depth of six inches and wherever a collection of peach gum and sawdust-like "castings" is found, use a penknife to search out and destroy the worm. Don't fear to cut the bark if necessary to find him. You will do less damage than he will. Leave the earth scraped away for a couple of weeks so upon a second examination you may find any that you have missed the first time over. There's no harm in leaving it thus for a third examination, say a month after the first. Before winter fill up the hollows, tramp the earth down hard and then make a cone-shaped mound of earth say six inches high around each tree. Leave this until spring as a protection against mice and rabbits. In early June, another mound may be raised so as to compel the peach borer moth to lay her eggs higher up on the trunk than the ordinary level of the ground surface. This she will do usually about midsummer. The borers are hard to find before September.

★ In many parts of the country, particularly where the soil is heavy and poorly drained, BLACKBERRIES, DEWBERRIES and RASPBERRIES suffer from winterkilling. The damage may be considerably reduced or even prevented entirely by laying down the canes at the approach of winter. The simplest way to do this is to start at one end of the row, and with a many tined "D-handled" fork press the canes down until they reach the ground. To hold them thus the fork need only be thrust firmly in the soil until enough earth has been placed upon them to hold them down. Then the next clump of canes may be laid over the first one and the process of covering repeated. Much greater speed may be attained where three persons work together, one pressing and holding down the canes while the other two do the covering. It is usually not necessary to cover the entire canes because enough leaves and other autumn debris is generally caught and held to aid materially in protecting them. In spring when wild berry bushes begin to show signs of life, or preferably not before currant and gooseberry bushes show their first leaves, the earth may be shaken out with a fork, the canes pruned and tied up for the summer.

★ As soon as the ASPARAGUS TOPS begin to turn yellowish and the berries begin to redden they should be cut and placed on the compost pile to decay. Otherwise the seeds will fall upon the bed and give rise to new asparagus plants which are not needed. If the plants have been diseased (rusted) the tops had better be burned without delay. After the cutting a thick dressing of manure to serve both as mulch and fertilizer may be applied. While some people advocate fall setting of asparagus, it is generally best to wait until spring because unless the ground is in ideal condition (especially as to drainage), the fall set plants may be injured. A warm soil and a sunny exposure favor fall setting as well as the production of early spears. Distances between plants and rows vary with individuals. Some people plant 2 x 2 feet; others 2 x 5 or 6 feet so as to utilize the space between rows for

early maturing crops such as radishes, lettuce, beets, carrots and cabbage.

★ WHITE GRUBS, WIRE WORMS and other insects whose habits of living are similar may be in part controlled and damage to succeeding crops prevented to just that extent by plowing during mid and late fall because such practise destroys the hibernating quarters or so disturbs the creatures that they fall victims to frost. By this practise also much of the food—grass roots—upon which they feed will have decayed by spring so that many will then starve. But since many are likely to live in spite of all this it is well to delay planting until late and then avoid all crops specially susceptible to these attacks; for instance, strawberries.

★ Do your bit to reduce the number of WORMY APPLES. How? See to it that no "worm" escapes to form a chrysalis. Gather up all the apples that fall prematurely because they contain worms and feed them to pigs, poultry or other domestic animals that will eat them. Failing such sources of consumption bury the worthless fruit and make the balance into sauce or other canned product, being careful to burn or bury the parings and cores. Put wire screens on the storage cellar so the moths cannot escape to lay eggs next spring on the early formed fruit. During favorable days examine crevices in the bark of the trees and destroy all hibernating worms and cocoons so found. Indeed, it is a good plan to place bands of burlap around the tree as early in the fall as possible.

★ TWO KINDS OF BORERS are common in apple trees; the round headed and the flat headed. The former is most often found near the surface of the ground above or below; the latter anywhere on the trunk or main branches. Clean culture and washes (such as lime-sulphur or caustic potash added to soap solution until the mixture becomes creamy) are fair preventives. But to make sure a careful examination of the trees should be made in early fall and another two or three weeks later. All borers (discovered by their castings) should be dug out with a knife and killed.

★ THE SAN JOSÉ SCALE is specially defenceless during late fall and early winter because the insects are then immature and their scaly coverings are softer and more easily penetrated. Spraying first with a twenty-five per cent. oil emulsion (scalecide, or some such special preparation), during mid to late autumn or with winter strength lime-sulphur solution will prove effective with even rough barked old trees. A second application of either spray may be given with profit just before the buds break in spring; after the foliage appears, the spraying solution must be reduced to "summer strength."

★ The PEAR PSYLLA, a tiny sucking insect, hides in crevices of the bark over winter and does much damage both directly by sucking the sap and indirectly by its "honey dew" secretions which are followed by blackening of fruit and foliage. Scrape and burn the bark in November, December or March, and then spray with "black leaf 40" or other commercial nicotine preparation, three quarters pint to 100 gallons and five pounds of soap. Miscible oil or scalecide at the rate of one gallon to 15 of water is also effective. Spraying must be done when the temperature is above freezing.

Stretching the Calendar

LENGTHENING the season of fresh vegetables by several weeks beyond frost dates is quite practical, by giving slight protection. A coldframe is simply a box-like structure, with or without cover, made of any boards, the wider the better, and supported by stout posts. It may be constructed anywhere though a fence at its northern end, or a clump of trees will help its efficiency.

In a straight line, drive short, strong posts, about 3 feet long, 3 feet apart, to a depth of one foot. Six feet away and preferably to the south drive a second row, equally spaced, 18 inches deep. Nail boards to these posts on the outer sides and your frame is ready. Now dig up the contained soil, mixing in some well rotted manure, or some "complete" chemical fertilizer and sow seeds, as suggested elsewhere. Such a frame will enable you to grow some extra early beans and beets to maturity as well. Seeds may be sown in close rows; six to eight inches for lettuce; radish, four inches. It is really surprising what a vast amount of stuff can be grown on a limited area, if the space is handled systematically.

When nights get so cool as to become frosty, cover the frame with boards to which may be nailed mats or burlap or any kind of material that will keep out the cold. Uncover in the morning; cover at night. Later on the frame may be converted into a very serviceable hot-bed—but that's to be told of in next month's GARDEN MAGAZINE.

Fall Strategy for Late Crops

THIRTY days (region of New York) separate us from the earliest recorded frost of the season—the average date is three weeks later, however. It seems absurd to talk of starting a vegetable garden at this time. And yet, nearly ideal "growing weather" prevails the biggest part of this month. More

SKIRMISHING ALONG THE FROST LINE

than a dozen extra early semi-hardy vegetables may still be sown for foodstuffs outdoors, if you press into service, toward the end of the month, some simple devices to keep off the frost. Vegetables that are semi-hardy and that will endure considerable frost if gradually hardened are lettuce, onions (from sets), peas, radishes, spinach, and turnips.

Onions from sets will not yield until spring; but by planting out either Egyptian Winter or multiplier or potato onions this month, you

may gather green onions when your neighbor gets ready to plant his sets.

Peas. Sow first week of this month. Such early varieties as Market Surprise or Pedigree Extra Early, etc., will mature where no "killing" frost disturbs vegetation before October 20th. Sow late peas in double drills, about 2 inches deep, 4 inches between the drills and 18 inches between these double rows. Four 15-ft. rows, handled in this fashion, will yield 2 good messes of pods before frost. Thus planted in a compact area, they are easily cared for and protected from severe cold.

Lettuces that will reach edible size before frost injures them are Early Curled Simpson, and Prizehead among the loose-leaved kinds; May King, Naumburger and Big Boston among the butterheads; and Crisp-as-Ice as a crisp or cabbage head variety.

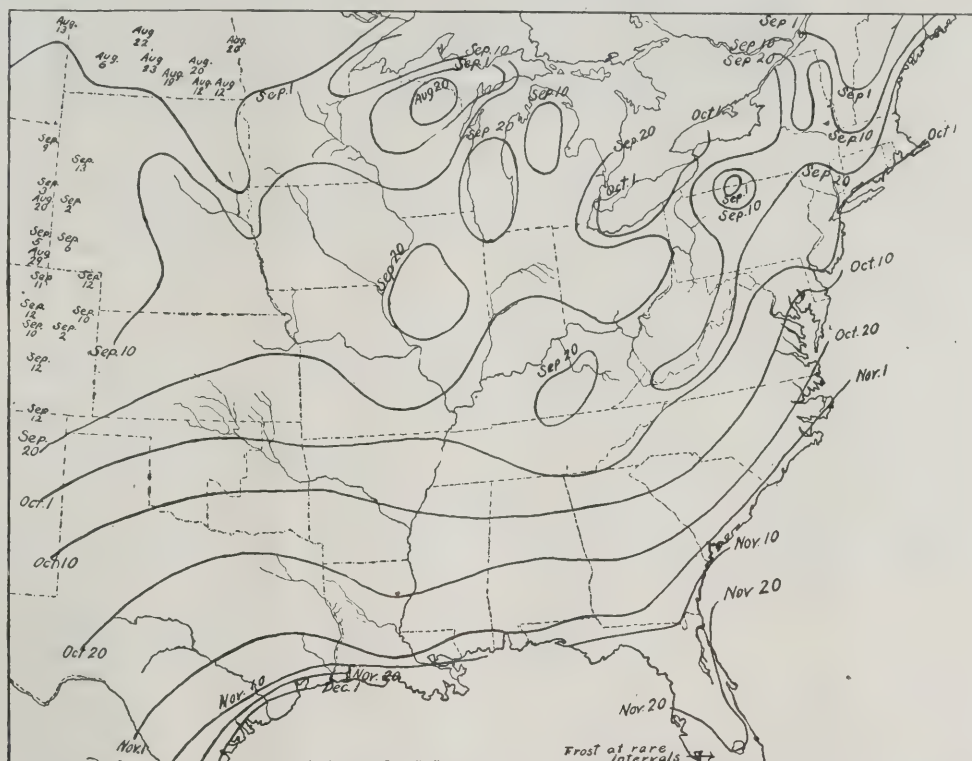
To grow them to full size, the protection of a coldframe or some such device is necessary—a few boards, nailed together in box-like fashion will suffice even.

Radishes of the extra early round turnip and olive-shaped types that will reach full size by end of month from seeds sown at the beginning are Hailstone, Snowball, Rapid Red, Red and White Olive-Shaped, and French Breakfast. Sow thinly, thin promptly, water and cultivate freely.

Spinach endures considerable cold, and with a slight protective mulch of straw or dry leaves will go through the winter in

the latitude of New York. Frost Resistant Munsterland is the hardiest of all, but it may be impossible to get seed, because of the embargo on Dutch spinach seeds. Sow at once Prickly or Winter, Victoria or Long Standing Prickly to furnish "greens" by October and again next spring.

Turnips. The Milan varieties will reach the desirable 2 inch size by end of October from seeds sown early in September. This crop, like radishes, will develop very quickly if seeds are sown



"Forewarned is forearmed." This map shows the earliest recorded frosts. The average date of expectation is about three weeks later. Prepare for the unexpected!



Late and tender crops of vegetables may be saved for two or three weeks by adequate preparedness. Lettuce (left) and beans (right) covered with handy cloths on the threat of frost. In the centre: egg plants; the one in front was covered by an old barrel, the others were not. Take the hint?

thinly and the seedlings promptly thinned to 3 inches apart.

Snatching Victory from Frost's Assaults

TIMELY cultivation and systematic watering will keep crops growing and in full vigor. Any backward crops of cabbage, celery, lettuce, cucumber, bean (anything other than root crops) can be urged on by weekly watering with nitrate of soda solution

made by dissolving a teaspoonful of nitrate of soda in four gallons of water—failing this use sulphate of ammonium or plain household ammonia equally diluted.

Tomato vines must now be severely pruned, cutting out superfluous branches that have borne fruit and "suckers" that develop at leaf-joints and at the base of the plant. Trim the tops of every branch, and *cut off every flower*, for remember, *tomatoes require from 30*

to 50 days from date of pollenization to develop to fair size and frost is likely to come soon. Remove some foliage, to give the sun free access to the fruits.

Blanch celery by means of earthing up or using paper or cardboard "blanchers." It stimulates the growth, improves the quality and acts as insurance against unexpected frosts. If crops get frozen remember: to preserve them is to spray cold water on them before they thaw.

ONE factor of prime importance to every garden owner who looks forward to next year's production is the growing difficulty of procuring an adequate supply of fertilizer to add to the natural food stores of the soil. Chemical fertilizer is becoming more and more difficult to procure, and in many parts of the country stable manures are almost unobtainable. And yet to the gardener who looks forward and plans ahead the prospect is not as gloomy as might be supposed. In the best of circumstances chemical fertilizers are a short cut, an easy means of attaining an end necessitated because the course of management of the land has been exhausting, not enriching. We are prone to exact the uttermost yield from a garden under forced conditions instead of so managing as to build up a self-perpetuating machine. We have at our hands this potent means of maintaining fertilizer value in the soil—cultivation and cover crops. The former practice pulverizes the mineral particles of the soil and exposes others to the chemical action of the air. The cover plants turn in vegetable matter, humus, and so we in our gardens do mechanically and in a short space of time what the elements do naturally in wearing down rocks and making soils over the centuries.

A Practical View

COVER CROPS, those plants used solely for the benefit of the soil and the crop to follow, are of such inestimable value in enriching the garden that they should be used to the limit of practicability. The great majority are fairly quick growing annuals, many of them hardy so far as winter is concerned. Their general strong points may be summed up as follows:

(1) They prevent washing of the soil during autumn and spring rains. Both roots and tops aid in this matter.

(2) They make the surface pleasant under foot during winter when work must be done upon the land.

(3) They save soluble plant food that would otherwise be washed over the surface or down to lower levels out of reach of the succeeding roots.

For these three reasons, then, on land likely to be washed, the cover crop should have a large amount of top that will form a good obstruction to water and a good holder of snow. It should also have a large and fibrous root system so as to hold the soil grains; of the two probably the former is the more important.

Other Services Rendered

WHEN sown in late summer or early autumn quick growing cover crops tend to take considerable water and nitrogenous plant food from the soil and thus serve to check late growth of fruit trees and bushes and thus to *prevent the winter killing* of imperfectly ripened wood. The branches mature better

CAN'T BUY FERTILIZER? THEN GROW IT

where a cover crop is used. A tender crop such as buckwheat must be sown either much earlier than a hardy one, because it may be killed by an early autumn frost; or, it may be sown with a slow growing hardy crop (such as rye) which will take its place and function during the latter part of the autumn and the winter. Such a combination is often specially valuable where the trees are bearing large loads of fruit because the effect of the rye will rarely be pronounced before spring.

In both garden and fruit plantations cover crops add humus, or vegetable matter, to the soil and this material may contain relatively large quantities of mineral matter which they have secured from comparatively insoluble sources. They thus take the place of both stable manure and commercial fertilizers to a large extent. No matter whether the soil be heavy or light the supply of vegetable matter must be kept up. *Hence the cover crop that makes the largest amount of vegetable matter in a given time is generally the best to select.* To aid in getting such a growth manure or fertilizer or both may be added to the soil before the cover crop is sown.

What May Be Sown Now

MANY cover crops add nitrogen to the soil but some of these must be sown too early in the season to be of value in the garden. red, alsike, sweet, and white clovers are thus out of the question. But crimson clover may often be used following early potatoes and other crops which are harvested before midsummer or shortly after. It may also be sown among tomatoes, cucumbers, corn, cantaloupes and other crops that die with the first frost. The time to sow among these is after cultivation has stopped and the vines occupy the ground.

Why You Can Sow at Once

AS THE seed may not germinate for three or four weeks, and as the plants use very little moisture while small, they will do no damage to the vegetables, and the vegetable vines will not interfere with their development after the harvest. Hairy vetch sown alone or with rye is the other first class garden and orchard cover crop. It is more hardy than crimson clover and may be sown as late as early October on Long Island. This matter of *adding nitrogen is of special importance during these war times* when chemical manures are several times more costly than hitherto. In orchard and small fruit practice it is possible by continued annual use of legumes to make the soil too rich, but such cases are rare. The corrective is the use of nitrogen consuming cover crops such as buckwheat and rye.

Cover crops, especially the erect and stiff

stemmed ones catch and hold leaves and snow during fall and winter. The former add vegetable matter; the latter adds the small quantity of available nitrogen that water from the sky always contains.

Those crops that form a mat beneath trees may protect fruit from injuries which follow falling on the ground. This is especially noticeable with soft fruit like peaches, pears, plums, and early apples. Cover crops also protect the roots of trees and bushes during winter since they *check the alternate thawing and freezing of the soil*. An area protected will often continue frozen whereas one not covered may thaw deeply and settle, then freeze and heave seriously enough to injure the plants, especially if only recently planted.

Now For the Other Side!

SUCH being the main points in favor, what of the points against cover crops? The one often raised that they are killed by frost is of small importance; for the roots and the remains of the tops are still available. As a matter of fact practically everything is saved even in such cases; the only loss is water! some people raise the opposite objection; namely, that the plants do live over winter! Here is where danger is most likely to lie: the crop may be allowed to grow longer than it should in spring. The only safe general rule to follow is to dig or plow in spring as early as the ground can be worked, because every day's growth reduces the amount of soil water and hardens the plant stems.

Best for the Garden

FOR the garden the best cover crops to sow are: buckwheat, if sown before September first and in a section where the first fall frosts come as late as mid-October; cow-horn and ordinary turnips and rutabagas are hardy any time during September or early October where there are at least six weeks before winter sets in (some of the turnips may grow large enough for home use); Dwarf Essex rape, is good for the same reasons; rye, very hardy, almost sure to grow but is likely to get a serious start in spring—it *must be plowed under early*; crimson clover, a nitrogen collector, best of the clovers for garden work, often winter-kills in cold sections; winter or hairy vetch, hardy, excellent for collecting nitrogen and adding vegetable matter to the soil is best used with rye. Failing all other cover crops, don't despise those weeds which spring up during the fall. They are mostly annuals and may be easily killed by spring digging. In the meantime they will have held leaves and snow, prevented washing of the surface soil, checked the losses of plant food by seepage, added their vegetable matter to the soil, prevented injury to the tree and bush roots and in other ways played the full note of sown cover crops. If you haven't any weed seeds in your own garden be thankful to the neighbors for their unwitting donations.

PETERSON'S PERFECT PEONIES



216 N. Calvert St., Baltimore, Md., Sept. 29, 1916

In a letter received from you sometime ago, you stated that the roots you would send me would be a revelation—they are in every sense of the word. These roots were planted for me by an old gardener who has known nothing but flowers for half a century, and he tells me they are the finest and most promising lot of roots that have ever come to his notice, and he knows his business.—W. G. Blandford.

Beaver, Pa., June 28, 1917

I desire to thank you for the magnificent peonies which I bought of you last year, everyone of which grew, and has bloomed profusely. I have been buying and growing peonies for fifteen years and I never in all my experience saw such magnificent peonies the first year planted.—John B. McClure.

80 Montclair Ave., Montclair, N. J., Sept. 26, 1916

My order of peonies reached me yesterday in splendid condition. I had a man from our local florist's set them to-day and he told me of the hundreds he had set he had set few orders which were as fine as yours, in fact, he said one of your roots would make two or three ordinary plants.

—(Mrs.) Edith T. Bridge

Hamburg, N. Y., August 10, 1916

The peony roots purchased of you were the finest roots I ever saw. This year they all bloomed and the beauty of them surpassed my expectation by far. People came to see them from near and far and went into raptures over them. It is by far the finest collection in Hamburg.

—Mrs. Geo. J. Brendel

This Picture, an untouched photographic reproduction of a corner of one of my Peony fields, shows to what wonderful perfection and profusion of bloom *Peterson Peonies* have been brought.

Twenty-four years of enthusiastic devotion have taught me how to grow this noble flower so that the roots I sell are possessed of unusual vigor and vitality—roots that show surprising results the first season after planting and prove an ever-increasing delight as the years come on.

Peterson Peonies more than "make good"

They are Peonies of performance—not merely those of clever advertising. Many thousands of people have learned this to their joy.

Why not you

My 1917 Peony Catalogue, beautifully illustrated with my own photographs, will gladly be sent you on request. (Note; Peonies should be planted in the Fall).

GEORGE H. PETERSON, Inc. *Rose and Peony Specialist* **Box 50, Fair Lawn, N. J.**

Mohican Supremacy

WHY WE LEAD

BECAUSE of the study of, and devotion to, the Peony alone,—an undivided allegiance. It's significant.

BECAUSE our system of cultivation is unmatched in this country. Every root given individual and intensive culture,—as in a private garden. Ask those who have been here.

BECAUSE we do not send out a root until—regardless of its age—it has bloomed satisfactorily here the spring prior to its going to you. Some of the plants we deliver are three and four years old—with no advance in price.

BECAUSE there are not 2000,—nor 1000,—nor 500 distinct varieties; but scarcely more than 100; and we have "spiked the guns" of the duplicates at high prices.

There are lots of POOR Peonies; why not have the benefit of really expert advice? Our fame is nation-wide; everywhere the supremacy of our Peonies is established. It is because we are specialists in a sense which possesses a REAL value and significance; that is,

WE GROW PEONIES —NOTHING ELSE

"OUR REPUTATION HAS BEEN BUILT ON THE QUALITY OF OUR STOCK"

and they cost no more from us

DISTINCTIVE CATALOGUE NOW READY

Mohican Peony Gardens, BOX 300 Sinking Spring, Penn'a

Stumpp & Walter Co's Timely Topics

The keynote of September garden activity is "Preparation!" If you would enjoy inexpensive flowers all winter, *now* is the time to prepare. To be able to gather flowers outdoors soon after snow disappears, prepare *now*. You may enjoy green, velvety lawns next spring while your neighbor is just planning his, by *timely action this month*. And, last but not least, you can have a better garden that will yield bigger crops of choicer vegetables in 1918, if you lay the foundation for greater soil fertility this fall. The following offers will help you materialize all of above possibilities.

More Flowers For a Brighter Christmas

A small sum invested in bulbs this month will help make Christmas a doubly cheerful occasion. Plant the following in pots or pans (which we also offer):

Roman Hyacinths, the earliest of all to bloom and easiest to grow. White. \$1.25 per doz., \$8. per 100.

Narcissus, Giant Paper-White, fine for growing in water, with pebbles to support bulbs. Large Bulbs, 5c each; 50c per doz.; \$2.75 per 100.

Jumbo Bulbs, 10c each; 75c per dozen; \$3.50 per 100.

Enjoy These Extra Early Spring Flowers

The brilliant little Crocuses help much to make the lawns a great source of satisfaction very early in the spring. Who does not love the modest little Snowdrops and the more showy Daffodils? Here are the kinds that will help brighten the early spring days:—

Select, Named Crocuses in blue, white, golden, purple, yellow and striped. 20c per doz.; \$1.25 per 100, postpaid.

Snowdrops, select bulbs, single, 30c per doz.; \$1.50 per 100; double, 35c per doz.; \$2 per 100.

Daffodils, six select sorts, extra fine bulbs. Six bulbs each, six varieties, 36 bulbs in all, \$1.50 postpaid.

A Garden Full of Tulips for One Dollar Postpaid

Giant Darwin Tulips that bloom in May are one of our leading specialties. So well is the quality of the bulbs we sell recognized by the most critical that our sales of them ran into hundreds of thousands of bulbs.

Fine Darwin Tulips, in a mixture including choicest varieties, such as Clara Butt, Europe, Pride of Haarlem, etc., giving 75 bulbs in all, prepaid \$1.00. (West of the Mississippi \$1.25.)



The Tulips of Milady's Garden

in any quantity, of the most critically selected quality *only*, are available at prices within the reach of all. Tulips are our specialty! We handle, perhaps, a greater assortment of choice kinds than any one in the trade. Besides Tulips, we handle immense quantities of Hyacinths, Daffodils and scores of other bulbous roots. Our bulb department constitutes a very important part of our establishment, the high standard of which we maintain at all costs.

Beautiful Spanish Irises

Select mother bulbs for planting out this fall that will bear those glorious flowers commonly called the "poor man's orchids." We offer a splendid selection of sorts in the following collection:—10 bulbs each of 10 varieties, 100 bulbs in all, for \$1.25.

Inexpensive Fertilizer

As soon as part of the garden has borne the crop, dig up the ground and sow either Winter Vetch, Rye or Rape. Turned under in the spring the plants will enrich the soil. Our stock of these useful forage and "green" manure plants is excellent. Since market prices change frequently, write for latest quotations.



"Staigreen" Lawn Grass

is a scientifically compounded mixture of the choicest grasses especially adapted to eastern soils and sections. Sown this fall, it will make a strong, quick growth this fall, and become firmly established to provide a

beautiful lawn next spring. *Staigreen Lawn Grass Seed*, delivered anywhere in the U. S. at the following prices:—Pound, 40c; 5 lbs., \$1.75; 25 lbs., \$8; 100 lbs., \$30.

Write for Free Fall Catalogue

It will help you formulate fall plans for both your indoor and outdoor gardens. Really a complete guide to fall planting of bulbs, plants, seeds of such kinds as our lifelong experience in the business enables us to recommend to you as thoroughly dependable. Offers all you need for your gardening activity at reasonable prices. Please ask for it TO-DAY.

Stumpp & Walter Co

30-32 Barclay Street
New York

Forcing Bulbs in a Greenhouse

YOU CAN have flowers in the greenhouse during the winter without seriously affecting the use of the greenhouse for general purposes, as the bulbs when they are first brought indoors, are placed *under* the benches to develop a stem growth and they occupy bench space for only a few days as they are simply brought up to the light to give color to the foliage and finish to the flowers. The bulbs are usually planted in boxes, pans or pots according to the purpose for which they are to be used (see pages 43 to 46). Lilies, Callas, Ranunculus, Oxalis, Anemone, and Cyclamen are usually planted in pots and placed in the frame, covering them with one or two inches of ashes to insure even soil conditions. When the growth shows through above the covering, they can be removed to the greenhouse or retarded until wanted by maintaining a low temperature in the frames.

Freesia, Oxalis, Chionodoxa, Spanish Iris, and Gladiolus are also handled in this manner but they are usually grown in boxes as they are used more extensively for cutting.

The hardy bulbs such as Tulips, Hyacinths and the various Daffodils and Narcissus, Allium, Ornithogalum, and Crocus are to be planted in boxes or pans and buried in trenches out of doors or the boxes can be laid flat and several inches of clear sharp sand over them will prevent them from freezing. The freezing will do no damage but makes it very troublesome to get the bulbs without breakage. I prefer the burying method. They are, of course, more trouble when handled in this manner, but the even temperature of the ground at a depth of two feet is very conducive to root growth; and that we must have for high grade flowers. The bulbs are dug up as required, of course using the early bulbs first, such as Paper White Narcissus then the French grown single Narcissus, Crocus, and the single early Tulips in the order named.

Forcing can be started in November and continue throughout the entire winter.

Forced Bulbs After Flowering

AFTER they have been forced all the hardy bulbs may be used for outdoor planting. You won't get any returns for the first year, and they should not be used in conspicuous places as there is always some uncertainty about them; but those bulbs that increase such as the Narcissus, will in the course of a few years make some very respectable clumps.

Bulbs, generally speaking, are cool growing plants. There are but few that delight in high or even moderate temperatures. If grown in too warm a place, you get inferior flowers and weak stems. They are also much more likely to be attacked by insects and diseases when growing in uncongenial conditions. The flowers when cut, do not keep for so long a time when forced rapidly and it also tends to develop any weakness in the bulb and you will get a large percentage of blind buds; that is to say, buds that "blast" and do not mature. The maximum growing temperature should not exceed 55 degrees at night and 50 degrees would be better on an average. Exceptions are: the Lilies of all kinds, which may be grown at 60 degrees or even 65 degrees; Lily-of-the-valley can be grown at 70 degrees without harm; Amaryllis will stand from 60 to 65 degrees. Freesias and Cyclamen should be grown at 55 to 60 degrees.

Gladioli

IF YOU could see the Gladioli in full bloom at Cedar Acres (75 acres of glory) you would just have to have Gladioli in your garden.

You can see the blossoms, if not the fields, and you can choose your varieties from the actual blossoms.

I will deliver to you in perfect condition a large box of Gladioli spurs in full bloom, adequate for selecting bulbs to plant next Spring for **One Dollar**. A greater variety for **Two Dollars and a Half**. Each variety labeled and priced for immediate order, and early Spring delivery. My fascinating booklet on Gladioli accompanies each box.

Buy now after you have seen the actual blossoms. Present prices are low. Stocks of Gladioli will be limited next Spring and prices high.

Cedar Acres

B. Hammond Tracy (Box 27)

WENHAM, MASS.

A Bulb Catalog of Value

Do You Want to Know all About

May Flowering Tulips—Darwins, Breeders, and others—their origin and history?

Are you particularly interested in the various Types of Iris?

Have you ever had difficulty in distinguishing the Daffodils from the Narcissus?

Can you tell the difference between a "Bomb-shaped" and "Rose" Peony?

Our Catalog is the most valuable book of its kind published. It contains all the above and much other information of value to you. It is a book you will want to keep for reference.

Write for it to-day. Ask for Bulb Catalog

WOOD, STUBBS & CO., Louisville, Ky.

INCORPORATED



Brand Peonies

are the Choicest Productions of

America's Foremost Peony Specialists

The lover of good peonies is constantly on the look-out for something new and choice.

The seventeen years which we have spent in originating new peonies, place us now in a position to supply just this demand.

By the most careful and painstaking methods, we are constantly working to bring forth year after year new sorts of peonies.

We find that ten years from the planting of the seed is the least possible time in which the worth of a peony can be determined.

A variety to be retained by us must be healthy in root, stem and foliage. It must be not only beautiful but profuse in bloom and this bloom must come true year after year.

The careful and methodical testing of varieties along these lines permits us now to offer the public a line of peonies which are entirely to be depended upon. They are beautiful in bloom and entirely new.

A Few of Brand's Superb Originations Three of the "Greatest in the World"

Martha Bulloch—Pink. This famous beauty, as pictured above, was the subject of considerable attention at the exhibition of the Peony Society in Philadelphia, June 13-14th reported in Garden Magazine for July. Along with other first-class sorts, it was found worthy of praise because of its "superlative" qualities.

Elizabeth B. Browning—White. **Frances Willard**—White.

Our Finest Reds

Richard Carvel, Longfellow, Lora Dexheimer, Mary Brand.

MIDNIGHT—The Black Peony, a single four year root of which sold this season for one hundred dollars. (\$100.)

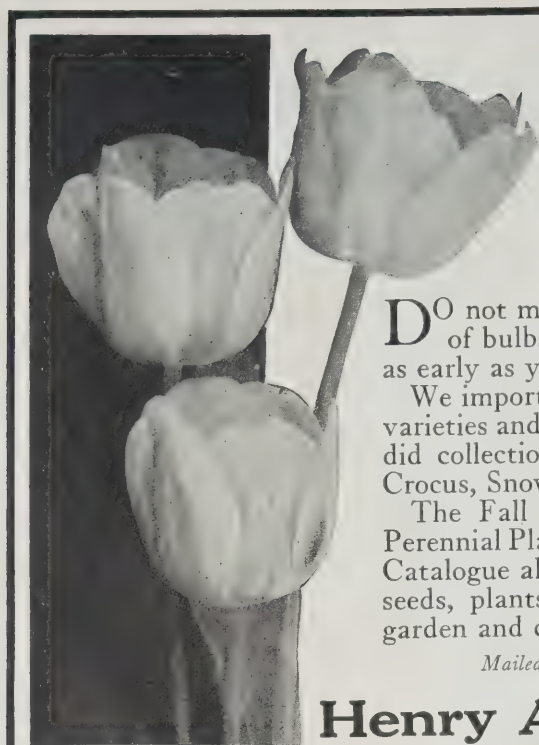
Others

Archie Brand, Louisa Brand, Chestine Gowdy, Florence Nightingale, Harriet Farnsley, William Penn—The monstrous, sweet scented deep pink. And many other new ones, just coming out.

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The Fall is also the time to set out Hardy Perennial Plants, Vines, Shrubs, etc. Our Autumn Catalogue also gives a complete list of seasonable seeds, plants and bulbs for out-doors, window garden and conservatory.

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are the best to use where winters are severe. Don't forget that plants which have stood Vermont winters can stand any cold climate where white folks are willing to live. I grow and sell Trees, Shrubs, Hardy Flowers of best sorts, Wild Flowers, Orchids for outside culture, Hardy Ferns, Lilies (mostly fresh from the beds), Crocuses, Tulips, Narcissus, Trilliums, etc.

Before placing your orders drop me a card and get my spring and fall catalogue. Don't fail to see it before ordering. Ask for Catalogue N.

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Many of the Most Famous Lawns

have been produced by the Lenox Formula—a high quality re-cleaned seed mixture of fine-leaved, dwarf-growing grasses. We recommend sowing from August 15th to September 15th, five bushels to the acre, or for renovating old lawns, one to two bushels. Per bushel of 20 lbs. \$5.50; per single lb., 35c. We shall be glad to make up special mixtures if desired and invite consultation regarding any difficulties you may experience in getting the right turf for any purpose or place.

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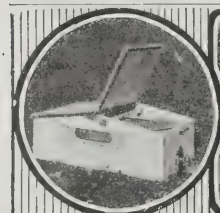
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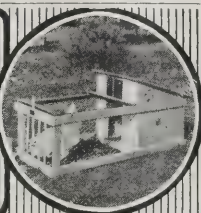
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E. F. HODGSON COMPANY Room 311, 116 Washington Street, Boston, Massachusetts
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Old-Time Southern Recipes

J. M. PATTERSON

CONTINUING the recommendation made in last month's GARDEN MAGAZINE (p. 26) here are some convenient ways of handling corn, beans, etc:

Butter beans, black eyed peas, navy beans and English garden peas can be left on the vine to dry. After gathering, spread out on paper in the attic to dry out thoroughly, then shell and put in thick paper bags. As a precaution against weevil pour a little bisulphide of carbon on the seed and close up the bag. One ounce to one hundred pounds of seed is the correct proportion. Bisulphide of carbon does not impair the beans for food or seed, but running them in the oven as is sometimes recommended impairs the beans for seed. Caution—Bisulphide of carbon is inflammable and should not be used near a light or fire.

Snap Beans can be put in a strong brine and are quite as good as those that are canned—

Snap Beans in Brine. Gather when tender and not too large, string and break in half—scald in boiling water, and then plunge in cold water immediately. Make a brine strong enough to bear an egg—put snap beans in an earthen jar and fill up with brine—let the beans be well under the brine—turn over them a heavy plate to weight them down—cover over with grape leaves and tie over top of jar a heavy piece of cotton cloth. A few beans could be added daily if there are not enough beans at one time to fill jar, but it is well to add a handful of salt each time so the brine will be quite strong. To use, take out as many beans as needed and soak over night, cook and serve.

Corn packed in salt. Gather the corn when in good condition to eat and prepare the same day—boil on the cob until the milk ceases to flow, which is about ten minutes—cut the corn off the cob being careful not to scrape the cob and get any of the husk—and pack in stone jars in the following order:

A layer of salt at the bottom half inch deep, then one of corn two inches deep, another half inch salt, and so on until the jar is nearly filled. Let the top layer of salt be double the depth of the others and pour over all melted lard (not hot) or paraffine. Press upon this when nearly hard a thick white paper, cut to fit the mouth of the jar. Keep in a cool place. To use, take out of jar as many cupfuls as are needed, pressing the covering of salt and lard carefully back into place. Soak corn over night before using.

Corn Put up in Brine. As late as possible in the fall prepare tender roasting ears for winter use. Strip off the outer shuck, leaving the inner, silky ones next to the grain. Have ready a nice clean wooden firkin or tub, properly scalded and sunned. Sprinkle salt over the bottom. Pack closely with corn. Wash a large flat rock and lay on the top when nearly full. Pour strong brine over the corn, covering it well. The day before using, strip off the shuck and silk, place in a bucket of cold water (renewing the water once or twice) and let it stand until ready to use.

Two ears soaked thus and shaved into a pot of soup with other vegetables will impart a delicious flavor. Boil on the ear ten minutes and serve whole for dinner.

Dried Corn. Boil corn on cob about twenty minutes. In cutting it off be careful not to cut too close to cob. Spread on a cotton cloth and put in sun each day until perfectly dry, taking it in at night. When dry put in a cotton bag and hang in a dry place. To use, take a tea cup full and soak in water all night before using, and before serving boil it for five minutes. It is not good for corn pudding.

QUINCE HONEY

This Quince Honey can easily be put in wide mouthed bottles as can the cold Cucumber Catsup.

Choose for this honey nice ripe quinces, pare, core and grate. To a pint of the grated fruit allow three pounds of sugar and a pint of water. Boil the sugar and water until it spins a thread, add the grated quince and boil as thick as honey. Pour into jars and seal hot. This is nice to serve with hot breads and cakes in the winter.

OLD-FASHIONED HOMINY

Making hominy by the old method is so much better than the new way but it requires much patience.

Two heaping tablepoonfuls of cooking soda can be used in place of the home made lye to bring this old time receipt down to modern times.

To Make Hominy. 1 qt. of dry white field corn. ½ teacup of home made lye.

Wash the grains of corn thoroughly. Mix with the lye. Put in a large kettle on the stove and cover well with water to be under water two inches. Let boil until corn cracks. Take off of stove and set aside to cool. Rub corn between the palms of the hands to free the grains of the husks. Rinse in fresh water. Cover thoroughly with water and put back on stove and let come to a boil. This rids it of the lye and leaves hominy white. Pour this water off and put on again with twice as much water and cook slowly until done.

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The finest named varieties now ready for your selection and Fall planting. Send for descriptive price list.

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OF FIRST importance — planting conditions are in both your and their favor.

When Fall planted, they become firmly established and next Spring put forth a vigorous growth; which means quick, sure returns for your expenditure.

Then there is the help problem, which is now in your favor. As short as it has been, it will be shorter yet in the Spring; shorter and cost more.

With the usual Fall slacking off of estate work, you will find more men available. The thought of frost and Winter, also makes them less independent.

As for the quality of our trees, we will leave that to you or any expert you may choose to pass on them.

We known them to be a choice lot, with full vigorous tops and abundant compact roots.

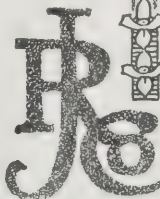
In variety, few nurseries have as large an assortment, even to the rarer kinds. Send for our catalogue.



Every worth while nursery burlaps their evergreen root balls nowadays. Burlapping is recognized as essential to best results. But don't lose sight of the fact that it's roots you want. Plenty of compact fibrous roots with ample clinging undisturbed soil about them.

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Davey Tree Surgeons

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A Real Peony Bargain

12 plants, 6 good kinds,	\$2.50
25 plants, 12 good kinds,	4.50
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Free blooming named varieties, our selection, mailing size, good value, and sent prepaid. Many should bloom the first year.

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If you like blue flowers, you simply must have some of our wonderful seedling Larkspurs with their regal spikes six feet or more in height in marvelous shades of dark-blue, light-blue and white.

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To introduce our new Seedling Larkspurs, we will send prepaid to any address:

12 Assorted, One-Year Old
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Guaranteed to bloom continuously year after year.

SEND FOR OUR CATALOGUE
"PERENNIALS FOR
FALL PLANTING"

Charles H. Totty
Madison New Jersey

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in September

(Following dates are meetings unless otherwise specified)

- 1-2. Massachusetts Horticultural Society, Boston, Mass., Exhibition of the Products of Children's Gardens.
3. Lenox, Mass., Garden Club.
4. New Bedford, Mass., Horticultural Society.
4. Lake Geneva, Wis., Gardeners' and Foremen's Association.
4. Garden Club of Pleasantville, N. Y.
6. Marshfield, Mass., Garden Club.
6. Garden Club of Lawrence, L. I. Lecture: Garden Design and Color.
- 6-7. Northern Nut Growers' Association, Annual Convention, Stamford, Conn.
7. Pasadena, Cal., Horticultural Society.
8. Dobbs Ferry, N. Y., Horticultural Society.
- 8-9. Massachusetts Horticultural Society, Boston, Mass., Dahlia and Fruit Exhibition.
10. Park Garden Club, Flushing, L. I.
10. Rochester, N. Y., Florist Association.
10. New Rochelle, N. Y., Garden Club.
10. New York Florists' Club, New York City, N. Y.
12. Short Hills, N. J., Garden Club.
12. Lenox, Mass., Horticultural Society.
14. Nassau Co. Horticultural Society, Glen Cove, L. I.
14. Connecticut Horticultural Society, Wethersfield, Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
14. Minnesota, Minn., Garden Flower Society.
17. Lenox, Mass., Garden Club.
19. Rhode Island Horticultural Society, Providence.
19. Tarrytown, N. Y., Horticultural Society.
20. Marshfield, Mass., Garden Club.
- 20-22. American Peat Society, Minneapolis, Minn.
21. Pasadena, Cal., Horticultural Society.
- 21-22. California Dahlia Society, San Francisco, Cal. Annual Exhibition.
22. Dobbs Ferry, N. Y., Horticultural Society.
24. Park Garden Club, Flushing, L. I.
- 25-27. American Dahlia Society in conjunction with the American Institute of the City of New York.
- 26-28. Short Hills, N. J., Garden Club.
- 26-28. School Garden Association of New York, New York City. School Gardens Exhibit of the Schools of New York.
28. Connecticut Horticultural Society, Wethersfield, Garden Club of Lawrence, L. I. Flower and Vegetable Show.

The Late M. Vilmorin

Philippe de Vilmorin, head of the world-famous wholesale seed house of Vilmorin-Andrieux & Co., of France, died June 30th. He was forty-five years of age and had succeeded his father in the able direction of the firm which has long been an institution of the greatest value to horticulture and agriculture, dating from 1774. It is in the production of the sugar beet (by Louis Vilmorin 1816-1860) that the most spectacular result rests, but each generation has labored consistently for continued improvements in vegetables and flowers, until the very name of Vilmorin raises ideals of progress and standards of accomplishment that are quite unusual. Philippe de Vilmorin had many friends in America, and the writer of this note records the loss of an esteemed friend who was at all times ready to assist from the stores of his knowledge and experience.—L. B.

The Dahlia Festivals

FOLLOWING a season that has generally proven quite favorable for the production of flowers the managers of the American Dahlia Society are assured of an unusually representative display of blooms on the occasion of the annual exhibition to be held in conjunction with the American Institute at 25 West 39th St., New York City, September 25th to 27th. Admission is free, and the leading growers will have their novelties on view. On October 3rd the Short Hills, N. J., Garden Club holds its ninth annual Dahlia show, this time for the benefit of the American Red Cross. It is hoped that interested amateurs having blooms to send will communicate with the Secretary, Mrs. Chas. H. Stout.



Lil. Candidum

(Madonna Lily)

No Lily so glorious, so chaste, so fragrant, and **HARDY** planted in September—flowers June-July.

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Extra large bulbs	\$2.20	\$2.25	\$12.50
Monster bulbs.	30	3.00	15.00

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Fruit next year

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Humus

contains everything necessary for any plant and any soil
Each Pound (with proper cultivation) will grow more than
five lbs. of luscious vegetables

INSURE THE LUXURIOUS GROWTH OF YOUR TREES AND SMALL FRUITS by fertilizing them this Fall with Atkinson's Prepared Humus. Cream of the Earth top dressing, will produce a fine putting green or lawn quicker and cheaper than by any other method. The original, clean, odorless Prepared Humus. Beware of imitations and substitutes. Apply now on lawns. Humus is universally recognized as being an indispensable element necessary to plant growth, but it is not a complete fertilizer by itself. The elements lacking are supplied in Atkinson's Prepared Humus. "Humus is the basic matter for plant foods. Bread without salt would be a failure; plant food without Humus is a JOKE." Scientific Crop Feeding, Vol. 5, No. 5. Please send your dealer's name with your order. Price, F. O. B. cars at warehouse—Bogota, N. J., 100 lbs. \$3.00; 300 lbs. trial order \$7.50 the ton rate. Price per ton \$50.00, with instructions if desired.

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SUN DIALS

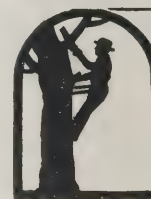
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Special Offer: To popularize the giant-flowering **DARWIN TULIPS** we will mail 12 blooming bulbs each of **CLARA BUTT**, clear salmon pink, **PRIDE OF HAARLEM**, deep rose shaded scarlet and **GRETCHEN**, very light salmon, \$1 36 fine bulbs in all, postpaid for.....

FREE—Treasures of Bulmland describes the choicest Hyacinths, Tulips, Daffodils, etc. Delivery in September. Write for your copy TO-DAY.

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G A M

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The GARDEN MAGAZINE

October 1917

Price 25c

In This Issue:

WHAT WAR GARDENS HAVE DONE FOR THE COUNTRY

MESSAGE FROM THE FOOD ADMINISTRATION

USING FRUITS AND VEGETABLES WISELY

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Trillium erectum (Beth Root), 10c. each,
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BEAUTIFY the shady corners around the house, the bank by the brook, or that strip of woods.

Hardy Ferns and Flowers planted now will grow robustly and flowers will reward you by blooming earlier next year.

Wild Flowers, Hardy Ferns, Bog and Aquatic Plants are included in our special Fall Offers for fall planting. Nearly all of the plants growing in my nursery can be transplanted in the fall with full assurance that they will grow.

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Thalictrum anemonoides (Rue Anemone), 10c.
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The Garden Magazine

VOLUME XXVI

OCTOBER, 1917

NUMBER 3



AMONG OUR GARDEN NEIGHBORS

Regarding "Peonies That Fit," in the September issue of THE GARDEN MAGAZINE, I agree with A. P. S. as to the first, Solfatare. But for a red, strongly urge Eugene Bigot in preference to any mentioned. I do not think Adolph Rosseau as fine a color as Eugene Bigot and neither has it the fullness of bloom. For the third I suggest Madame Calot; or better yet, add a dollar to the price and try Marie Crousse and you will always thank the writer for a dollar well spent.—*W. McClelland, Saginaw, Mich.*

Habenarias This Season.—There has been a wonderful display of Habenaria here this season. I have found *psycodes*, *fimbrata*, *rotundifolia*, *blephariglottis*, *ciliaris*, and all the greenish ones, but Hookeri. My most remarkable discovery was a cluster of some fifty plants of *ciliaris* and *blephariglottis*, growing together in a high mountain bog (*sphagnum*) and among them several undoubted hybrids. I am enclosing individual blossoms from two of these hybrids, in the hope that they will keep their dainty coloring until you see them. All the Habenarias do well under cultivation, provided they are supplied with *sphagnum*, or leaf mold and sufficient moisture. There are few garden flowers that surpass them in beauty.—*Herbert Durand, Ulster Co., New York.*

A Battlefield of a Year Ago.—The following is a letter from a British gardener-soldier at the front to the *English Garden*: "I have just traveled up the line again for the second time. I am not so very far away from the spot where I was last time, but the change that has happened since I left the line toward the end of last year has impressed me very much. I have crossed the old battlefield of a year ago—the ground that we were fighting for so hard—and it is unrecognizable from what it was as I saw it last. Nature has exerted her very utmost to cover up all the terrible havoc that has been done, and it is now a most beautiful garden. It is absolutely covered with flowers as far as the eye can reach, and the effect is most pleasing. The banks of the old trenches are covered with white Dog Daisies, and the vivid red of great patches of Poppies has a splendid effect. There are thousands of beautiful mauve Sweet Scabious and pink and mauve double Poppies. The loveliest flower to be seen, however, is the

Cornflower. It is such a rich, intense blue; there are whole fields of it, and the sight is most glorious. There are some tall yellow flowers, very much like Mustard, and the reddish brown seed of the Dock plant adds to the effect. Here and there are large pools of water, caused by the shell holes. The trees, too, that were blown to bits have thrown out shoots to cover up the ugly stumps. The unlevel nature of the ground adds a great deal to the beauty of the scene; truly a most lovely wild garden. Last year it was a horrible inferno; this year a veritable paradise. It

food

- 1-buy it with thought
- 2-cook it with care
- 3-serve just enough
- 4-save what will keep
- 5-eat what would spoil
- 6-home-grown is best

don't waste it

The "Neighbors" stand in positions of national responsibility at this time. They are both producers and consumers. (Reproduction of poster by the U. S. Food Administration.)

proves what the Great Gardener can do.—23004, *Private A. Speck, British Expeditionary Force.*

European Grapes for America.—That many splendid varieties of the European grape may be grown in the open air in the grape regions of New York is the experience of the State Experiment Station. Protection

against winter injury is easily secured. The superb quality, length of keeping after picking and usefulness for many purposes commend many of these. American grape varieties, though less susceptible to winter injury than the European species, occasionally suffer severely. In Bulletin 433 of the Station, observations made at Fredonia and other places in the Chautauqua Grape Belt during three years of crop shortage from winter injury are discussed.

Lack of maturity of the wood of the vines is given as the most common cause of severe injury; and attention to drainage, discontinuance of summer cultivation as weather conditions indicate, the judicious use of cover crops and avoidance of slow-acting forms of nitrogen, are some of the methods advocated for lessening winter injury.

I Have Read Mr. Rockwell's article in the GARDEN MAGAZINE for August with a great deal of pleasure and profit. This sort of article is of great service in furthering the food conservation campaign. You will be interested to know that this Commission, having inspired the planting of some two million more food gardens this year than ever before, has for some time been energetically campaigning for the canning and drying of the surplus production of the summer for winter use and we now estimate that this year individuals and canning clubs will put up some 460,000,000 cans of vegetables and fruits, an amount very greatly in excess of what has ever been previously canned in any one year.—*P. S. Ridsdale, Secretary National Emergency Food Garden Commission.*

Two Fruiting Shrubs for the Home Garden.—There is a great need for fruit-bearing shrubs for the small home garden, shrubs long lived and free-fruited as currants, occupying as little room. Here are two worth trying in northern gardens.

The Chinese Bush Cherry (*Prunus tomentosa*) is not a new plant as seed were planted in the Arnold Arboretum more than 30 years ago. It is now offered by several nurserymen and the Bureau of Plant Introductions of the Department of Agriculture. According to Bailey's Cyclopaedia, it is a small tree planted solely for ornament, and it truly is ornamental, a bush about 6 feet high and as wide, smothered in late April with a cloud of small pink



New Chinese Bush Cherry (*Prunus tomentosa*) having pink flowers in April. Grows six feet high

and white cherry blossoms, as pink as a Forsythia is yellow, and in bloom at the same time. No pink flowering shrub at this season of the year is as showy, except the Spring Cherry (*Prunus subhirtella*) whose fruit is not of value. In early July the cherries are ripe, red, tart, and twice the size of peas, thickly on every twig. The skin is finely hairy, an unusual character for a cherry. The flavor is very like the Sour Cherry, yet as a market crop these little fruits will find little favor, but for home use they are excellent, fresh or cooked. They ripen early, and the bushy habit fits the plants to small gardens where the usual fruiting trees are too large. As to hardiness—the plant is native to Manchuria, and already is planted for its fruits in the Dakotas. Mulberries are considered a choice fruit by children, and in the old days were frequently cooked. As a child my objection to them was that they made trees too big to climb safely, that the birds got about all the fruit, and only what fell from the tree to the dirt were mine to eat. A new Mulberry from Western China, *Morus acidosa*, is decidedly a bush, a straggling shrub some six feet high, with lobed leaves, large and small, as all mulberries have. The berries are not large, black, very numerous, and very tasty on a hot day in early July. If the children like mulberries beg the nurseryman to put this plant on the market. It was collected for the Arnold Arboretum in North China by Mr. E. H. Wilson in 1908.—S. F. H.

A New Method of Wintering Celery.—There is a method which greatly simplifies the storage of celery. It has been tested through many years' experience and has proven itself entirely effective. The most extraordinary feature about it is that it is practically unknown.

Select several water-tight kegs. Those which are used to hold salt fish answer very well. Of course, they should be thoroughly cleansed before being put to their second use. These kegs should have close-fitting tops. The best that the writer has used were tops of cheese boxes. Before the ground freezes the celery is lifted from the rows and packed very carefully in a standing position in the kegs. All this part of the work may be done in the garden. The soil is shaken from the roots of

the plant and the plants themselves, packed very close together in the kegs with their roots resting on the bottom. After the plants have been thus taken from the ground and packed, the kegs should be removed to a cool part of the cellar where they are to remain through the winter. Before covering the kegs, it is necessary to put about two or three inches of water in the bottom of each. This must be done with great care, for the celery must not be wetted. Use a tube to introduce the water. It will be found necessary to renew the water about every three weeks.

Celery thus stored will be perfectly whitened by the process. It will retain all its fine nutty flavor and is indeed as desirable a winter vegetable as can be wished. It is possible to store about a hundred plants in an ordinary keg.—Archibald Rutledge, Penna.

Beans on Strings.—Having found it hard to get poles for my lima beans, I tried the bush-limas, but, although much improved, their yield to the square foot of ground is considerably less than that of the pole limas. I therefore worked out a plan to grow them on strings, which I have done now for three years with good results, perfecting the details a little each year. The photograph shows my "beanery" just as the beans were reaching the end of their string, in the first part of July. It indicates plainly how the framework is put together. After the ground is dug and before the beans are planted, two strong posts, eight feet above the ground (and about two feet below), are put in thirty feet apart. A wire is run from top to top, and down to pegs at both ends, so as to make it very taut. Next, short poles are driven in, ten feet apart, in two lines, two feet each side of the line of the tall poles, and wires are run along them about six inches above the ground. The intermediate stakes are necessary to keep the wires taut.

Now, so as to get the fullest return from each yard of land, I set out two rows of lettuce plants on the bed between the wires, and wait for warm weather to come. Usually in the third week of May I put in my beans in a row under each of the lower wires. After the plants are up they are, if necessary, thinned to stand about five inches apart; and while my lettuce is developing nicely, I get my step-ladder out and tie cotton strings from one lower wire across the upper wire and down to the other lower one about 15 inches apart, which gives me three plants to each string. The beans rapidly run up the strings, and the shade they give is beneficial to the lettuce, which is now nearing maturity. In the picture, the lettuce has already been cropped off in one row—a head of Romaine is visible just to the right of the little gardener.

Lettuce is the right crop to use here, because being a leaf producing plant, it takes an excess of nitrogen from the soil, while beans (a leguminous) require less nitrogen than other plants.

After the beans reach the top, I have to tighten the strings, as they will stretch, no matter how tight they were at first. In view of this, I just throw them across the upper wire without tying when first putting them on and then put a loop in them and around the wire when tightening them afterward. If this is not done, the string will sag, and finally almost touch, and although the swinging on a breezy day does not seem to do the beans any harm, it makes it hard for a person to get inside the "beanery" to cultivate the ground.

I have grown lots of lima and other beans

this way, and the only expense is a ten cent ball of heavy cotton string each year, whereas the two posts and the wire can be used again from one year to another almost indefinitely, especially if they are taken up and stored away in the fall. The string is best burnt up with the beanstraw.—H. E. VanGelder, Westfield, N. J.

Fall Sown Sweet Peas.—I am pretty busy but I must take time to tell it. The receipt of the September issue of the magazine calls it to mind. Last November, within two or three days of Thanksgiving, I planted two rows of Sweet Peas. I followed in the most careful manner the instructions given in your paper by the President of the Sweet Pea Society, using seed obtained from one of the most reliable houses in the country. The first pea is yet to put in an appearance. I am no novice, having been brought up on a farm and have grown vegetables and flowers the greater part of my life. Have grown Sweet Peas, but not from fall planting. Therefore, the cause of failure cannot be lack of knowledge of the principles of planting. Should I try again?—J. W. Ginder, Washington.

—With a few exceptions, there is always a degree of uncertainty accompanying fall sowing of any seed in the open, success or failure depending almost entirely on the weather. During the past ten years we have been in the habit of making extensive fall sowings of Sweet Peas, sowing about the middle of November. Such sowings have as a rule been most successful until last year, when the early winter was so mild that the seed rotted in the soil, and we had to resow in the early spring. What I aim at is to sow so late in the fall that the seed may either just germinate previous to freezing weather, or lie dormant in the soil until early spring. When we are favored with a good old-fashioned winter, the ground frozen hard from Christmas until March, our fall sown Sweet Peas are safe, and give results immeasurably superior to those from spring sowing. However, the ideal method whereby all risk of failure is avoided, is to sow during October, using the special



Here's a practical bean support made from string

Sweet Pea frame, full particulars of which are contained in my article appearing in the September number of the GARDEN MAGAZINE.
—George W. Kerr, Doylestown, Pa.

Leaders of the Societies.—The accompanying portraits represent four leaders in four of the prominent national societies that are fostering and promoting our horticultural interests. At the summer convention of the Society of American Florists, held at New York in August, the presidency for 1918 was conferred on Mr. C. H. Totty, of Madison, N. J., whose service as the introducer of novelties (new Roses and Chrysanthemums especially) makes his name quite familiar to our readers. Mr. Totty has also rendered yeoman service as chairman of the Board of Jurors of the National and the New York International Flower Shows. At the meeting of the American Gladiolus Society, also held at New York in August, Mr. Kunderd of Goshen, Ind., was chosen as the next year's leader and the big exhibition will be in Cleveland. Mr. Kunderd is an experienced grower and breeder, having originated the ruffled type of flower among others. Dahlia lovers who have visited the National Society's shows in September in the last few years will recognize

in Mr. Richard Vincent, Jr., of White Marsh, Md., the genial president and founder of that live organization. He is a grower of florist's



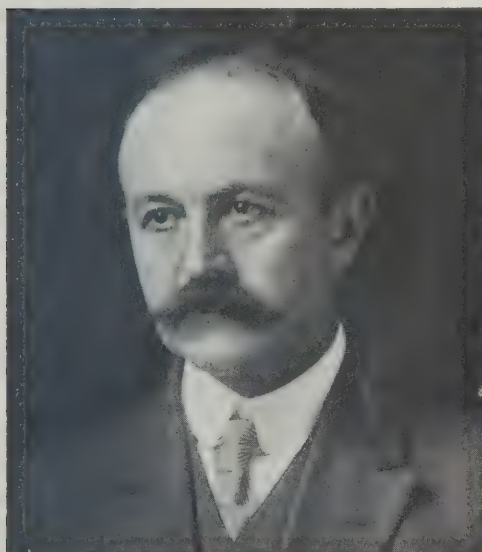
Charles H. Totty, Pres.-elect, Society of American Florists

plants on an enormous scale. The last portrait is that of Mr. Benjamin Hammond, of Beacon, N. Y., very well known as a manufacturer of insecticides, etc. He is now president of the American Rose Society and for several years past its secretary, during whose incumbency the membership has been increased very greatly.

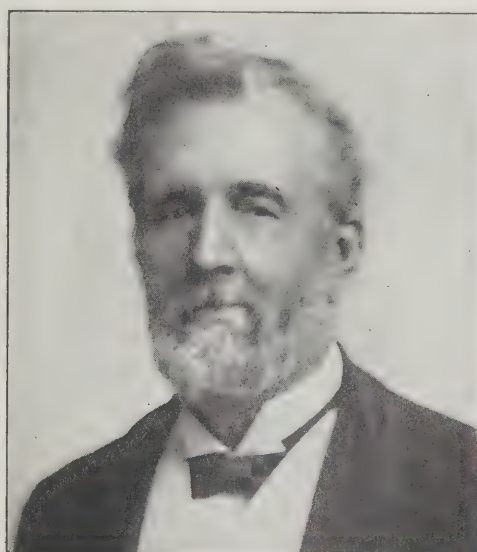
Gardening From the Outside.—Here's a street car newspaper's contribution to the spud stuff.

"A hint to the ladies: If you want potatoes from your garden do not pick the blossoms for a bouquet." They say lots of society people have planted sweets, thinking they were "murphs"—W. M., Detroit.

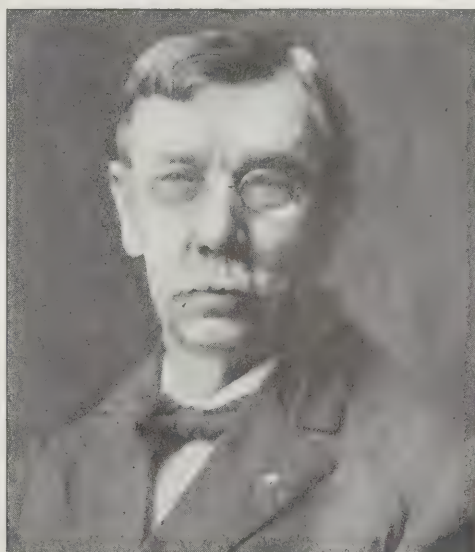
Has No Rival.—I shall be obliged if you will have sent to me Index and Title page for Volumes XXIII, XXIV, and XXV. I take this opportunity to express my appreciation of the GARDEN MAGAZINE which I consider has no rival in America and deserves a constantly increasing circulation. It is valuable both for the amateur and the professional, and personally I should miss very much not receiving it regularly.—Aubrey Tealdi, Landscape Gardener, Ann Arbor, Mich.



A. E. Kunderd, Pres.-elect, American Gladiolus Society



Richard Vincent, Jr., President, American Dahlia Society



Benjamin Hammond, President, American Rose Society

THE MONTH'S REMINDER

FALL PLANTING AND PREPARATION FOR WINTER

OCTOBER presents more opportunities to increase the value and the permanent beauty of your place than any other month.

Where time is limited, spring work must include so many routine planting jobs and fixing up that frequently there is little time left for special things.

So much has been said of trees, shrubs, herbaceous perennials, etc., in the GARDEN MAGAZINE (see last month's, and previous years) on the advantages of fall planting that it is needless even to recapitulate here. There is one thing, however, that cannot be repeated too often, and the beginner particularly should pay particular heed to it. *Do your fall planting early!*

The term "fall planting" may be misleading. Some people consider fall to begin only with the advent of real cold, freezing weather. Now, while some things can be put in late (until the ground freezes), yet for the majority the safest rule is "the earlier the better," as they need to become "established" before freezing weather.

Give heed to the following considerations in doing your fall planting:

1. Get stock shipped in from the express office promptly and *unpack immediately*.
2. Check up with your order carefully and make prompt complaint of shortage, poor stock, or bad condition.
3. Keep all roots, shrubs, etc., away from wind and sun, and wrap with burlap or water

to keep the roots moist until ready for planting. If several days' delay is unavoidable, bury roots in soil in a shaded place—that is "heel in."

4. Make holes large enough to take the ball of roots easily, and enrich the soil with well rotted manure and bone meal. Plant in well drained positions.

5. Pack the soil firmly about the roots, pressing down with the foot or a tamper, so that the tree or plant is in the soil almost as firmly as if it had been growing there.

6. Use water if the soil is dry, but not on top of the soil! Pour in water before planting, let it soak away and put in more when hole is half filled up. Leave an inch or two of loose soil on the surface after planting.

Winter-Flowering Bulbs

DETAILS of planting in pots, bulb pans, flats and storing in the coldframe, cellar, or pit preliminary to starting the bulbs have already been described in detail in the GARDEN MAGAZINE for September. [At this writing it is assured that a limited supply of Dutch bulbs will reach us for planting this fall. There is, also, a small supply of domestic grown bulbs available but the total quantity will only just meet normal demands. Therefore place orders at once.—ED.].

Are All New Plants Ready for Winter?

ARE all the perennials and biennials (started for next year) in their winter quarters? Those started early enough for transplanting to permanent positions for flowering in the spring and early summer ought to be in place by this time and making good growth. Transplant to winter quarters, as soon as possible, smaller plants to be "carried over" under mulching or in frames. Avoid any severe check by shading and giving plenty of moisture, so that they may become as sturdy as possible before growth stops. The mistake is made frequently of merely sticking in these things, and letting them go without further attention. A little liquid manure or nitrate of soda and frequent weeding or cultivation to keep the soil loosened up, and an occasional good watering, in absence of rain, will do just as much now to promote rapid growth as in the spring.

Make Your Cuttings Before Frost

THIS is the time for making cuttings of soft wooded plants, such as Geranium, Heliotrope, Fuchsia, Verbena, etc. The new late summer growth, which is beginning to "ripen up" is crisp and firm; and the temperature conditions are right to make the work of rooting the cuttings easy. It is not necessary to have a greenhouse to root these things. An ordinary flat filled with clean, gritty sand and a layer of sphagnum moss in the bottom may be used as a "cutting-bed." Placed where it will get plenty of light without direct sunshine, and covered or closed in at night to keep the temperature at 40 degrees or so, the slip will give good strong rooted cuttings within the next four or five weeks. The little plants may then be potted up and carried along in a deep warm frame, or in the house or conservatory, and will make good strong plants for flowering next spring or setting out of doors in late April or May. Make the cuttings two to five inches long, removing the lower leaves and cutting the others back about a half. They may be placed in the sand about as close together as they will stand and should be put into it about half their length. Keep the sand moist but not wet. Give a light sprinkling or spraying for the first few days to keep the plants from wilting but not enough to wet the sand, which should be kept rather dry until the cuttings have got over their tendency to wilt.

Plenty of Plants for This Winter's Bloom

WHETHER you have a frame, a conservatory, a greenhouse, or just a "flower-window" you can provide yourself with annuals for winter bloom by sowing the seed now in a frame or in a sheltered place. Use light soil, cover lightly, give one good sprinkling and then keep the soil covered with pieces of moist newspaper or a pane of glass—not quite air-tight—and in ten days to two weeks after sowing you should have an abun-

dance of such things as Stock, Clarkia, Calendula, etc., coming on to give good plants for pots or window boxes.

Why Not Eat Strawberries This Winter?

ANOTHER opportunity, generally overlooked, is that of growing strawberries in the frame for an early crop. Very often frames are allowed to stand idle all winter. Take up good strong plants now and put in generous sized pots of rich soil, water them and keep them shaded for a few days. The pots for the present may be merely sunk in soil up to their rims to prevent their drying out rapidly. On the approach of cold weather put them into the frame where they can be given some protection with sash or shutters. It is not intended to keep the frost from reaching them, as they should have a resting or dormant period of at least several weeks before being fruited. If one has a greenhouse they can be brought in at any time during the winter. If not, they can be kept in the frames, and by starting them into growth under the sash in February or March will come in some weeks ahead of the crop in the garden.

DO THIS MONTH

1. Do plenty of fall planting—but get it done early!
2. Put hardy perennials and biennials into winter quarters.
3. Make soft-wooded cuttings for winter and spring plants.
4. Take in "stock" plants of Geranium, Heliotrope, etc.
5. Start annuals for indoor bloom.
6. Provide strawberries for winter and spring fruiting.
7. Get the under glass crops—lettuce, radishes, etc.—under way.
8. Take care of the tender bulbs in good time.
9. Get after the aphids in frames and indoors.
10. Keep on sowing seed for next year's crop of "humus."
11. Get ready materials for mulching next month.
12. Get your bulbs planted for winter bloom indoors.

Get the Under-Glass Crop Under Way

IF YOU have any glass on the place—and if you haven't there is yet time to get some before freezing weather if you order at once—give attention now to the crops for fall and winter.

Have clean soil in the bed or benches in which lettuce, radishes, tomatoes, etc., are to be grown. It pays to put in fresh soil even at considerable trouble and expense. The old soil may be kept for potting up and using in flats for vegetables, etc., in the spring, or as compost for the garden. The soil for all these things should be, of course, made very rich. If manure is used let it be very thoroughly rotted, and fine. Much more is used than would be applied on an equal amount of space outdoors. The vegetables grown under glass have but 25 to 50 per cent. as much room as they would have in the open and, therefore, the soil must be made proportionately richer. In addition, it is desirable to keep them growing as rapidly as possible so that the same space can be used again. As soon as the various crops are well started, or within a week or so of setting out or transplanting, liquid manure or liquid nitrate of soda—a tablespoonful dissolved in two or three gallons of water, applied with an ordinary sprinkler—will be very helpful in giving both flowers and vegetables a strong start.

Time to Retire the Tender Bulbs

EVERY year thousands of dollars' worth of tender bulbs of various kinds are lost by being left in the soil after they should have been taken in. Of those ordinarily grown, which will be injured or killed outright by the first severe freeze, there are tuberous Begonias, Caladiums, Callas, Tuberose, Cannas, Dahlias, Gladiolus, Tigridias, and others of similar character. Of these, the first four mentioned are particularly tender and should be taken indoors immediately after the first light frost, which will blacken the foliage. Lay them in some warm, sunny place to dry, and cure under a greenhouse bench for instance. The others may remain until the foliage has been killed down, when it may be cut off six inches or so above the ground and unless severe cold weather threatens the bulbs may be left two or three weeks longer. Take them up before the ground begins to freeze up at night, however.

Get After the Indoor Aphis Early

ANOTHER matter likely to be neglected in the rush of cleaning up the fall work out of doors is attention to plants in the greenhouse or started in the frames. Don't let the aphids get a start! Tobacco dust or tobacco stems around the plants will help to keep them away but cannot be relied on altogether. Thoroughly fumigate or spray from time to time. The simplest, surest way is to spray or fumigate the plants regularly every ten days or so whether any aphids are to be seen or not, using one of the commercial preparations of tobacco extract such as Aphine, Black-leaf 40, etc.

Keep on Planting Cover Crops

REFERENCE was made last month to the advantage of sowing all the space in the garden as soon as available with rye, or better still, with rye and vetch together, to form a cover crop for the winter and a crop for plowing or spading under in the spring. Keep up this work until freezing weather. Sow the seed extra thick, work it in with a rake and if the soil is dry give a good watering to assure prompt germination. To get big crops you must keep your garden full of humus. Don't begrudge the slight expense involved, even if rye is extra high-priced just now—so is fertilizer, and so are vegetables. Your cover crop will save fertilizer and help you grow more vegetables. [Read the article on page 86—ED.].

Get Mulching Material Ready

FALL preparation for the winter by mulching is one of the important factors in keeping a place in good condition. While it is too early as yet to apply the mulch it is not too early to begin gathering the material required. The advantages of getting it now are several. You can put it under cover and have it dry and ready to use and immediately available. Clean, dry leaves are good for many kinds of mulching. A convenient way of gathering and storing them is to get some old burlap or grain bags and stuff them full of leaves as fast as the latter accumulate on lawns and drives. Marsh hay is better for some purposes than the leaves, especially for mulching strawberries, as it "stays put" and does not decay or remain wet in the spring. If there is not room to keep this under cover, have it piled in a neat stack near the garden or where it will be wanted for use. If properly "capped" when it is put up, it will shed rain and remain dry enough to use whenever wanted.



Root-vegetables in a trench ready for covering with hay. Afterward mound up with earth. Blankets or mats are used temporarily till real cold sets in



Storing apples, potatoes, etc., in crates or barrels in a cellar is convenient. They may be picked over from time to time if necessary

F. F. ROCKWELL

STORAGE OF GARDEN PRODUCTS FOR THE WINTER WITH OR WITHOUT A CELLAR, INDOORS OR OUT

SOME clever paragrapher once said: "There are a thousand ways of making money, but only one way of having it—that is, to keep it" and the same may be said of the products of the garden. There are problems in the way of growing things, yet you will find a dozen gardeners who succeed in growing all, or more than, they can use where you will find one who *saves everything that could be saved after it has been grown*. It is a mistake to assume that the saving of the garden products is less important than growing them in the first place. At the present time when there is the prospect that within a few months hundreds of thousands of our own people and of our allies will be seeing the shadow of starvation, there is every reason for each one to do his or her utmost to save everything from every garden, large or small, that can be saved.

VEGETABLES and fruits spoil, many of them in a very short time after being harvested or picked, as the result of the presence of certain bacteria which attack them immediately and start the processes of decomposition or decay. To make vegetables or fruits "keep" the gardener or housekeeper has to prevent the bacteria from attacking them. In canning or preserving these bacteria are kept away by the can or jar after all those present in the material to be canned have been destroyed by heat sterilization. That is why a leaky jar or can will quickly spoil—the germs get back into it again.

Another way of keeping fruits and vegetables is to lower their moisture content to such an extent as to prevent the destructive bacteria from making their attack in the usual way. That is what is done in drying, or, to use the more modern term, evaporating or dehydrating, fruits or vegetables.

A good many vegetables and fruits will "keep" for many weeks or even months if they are given the conditions of environment required to keep their texture or cell structure in a normal state. That is what we do in "storing" vegetables and fruits for winter.

Methods of canning and drying have already been described at length (GARDEN MAGAZINE for July).

THE number of things that can be kept through the winter by storing, without artificial preservation of any kind, is much greater than commonly realized.

The things which may be kept until early spring include beets, cabbage, carrots, celery onions, parsnips, radish, rutabagas, salsify, squash, pumpkins and turnips. Those which may be kept for a number of weeks include cauliflower, sweet corn, lettuce, endive, peppers, egg-plant, melons and tomatoes. Making full use of both groups, the "winter garden" becomes a thing of real utility.

Different methods of storing are required for different groups. The beginner must know exactly what is meant when told to "store in the cellar" for winter, or to keep "in the store-room" at "a suitable temperature." The temperature suitable for some things is entirely un-



Cabbage upside down in a trench. Fill level with light soil and mound to shed water



This tells the story of storing celery. The earth is packed well about the roots only

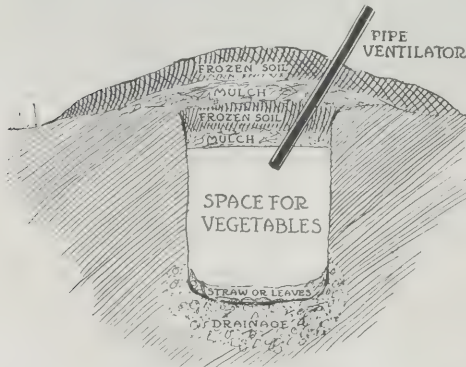


Potatoes are dried off where dug for a few hours before storing in a dry frost proof cellar

suitable for others. Sweet potatoes will decay in a very short time under conditions in which ordinary white or Irish potatoes would keep perfectly; while Irish potatoes would get soft and begin to sprout if stored where sweet potatoes would keep.

Where and How to Store

THE best and the most convenient place for storing most of these things is a cellar. Cellars, however, vary greatly. To keep most of the vegetables to be stored properly the cellars usually made nowadays are not so good as the more old-fashioned ones, which were more



The outdoor pit as it should be

completely underground and consequently remained at a more even temperature, and were dark. While too much moisture in a cellar is likely to increase the chance of things spoiling by decay, a cellar in which the air is kept dried out by artificial heat is almost as bad. Stone walls and a good dirt floor in a well-drained position seem to furnish just about the amount of moisture necessary to keep vegetables sound and plump without stimulating moulds, mildew and the various forms of decay.

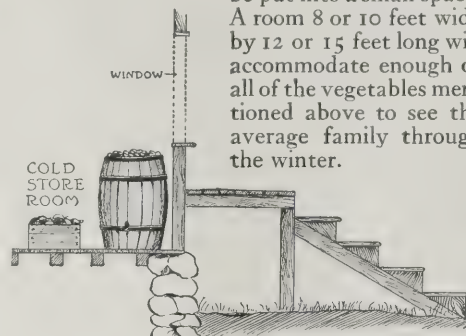
Such a cellar is not commonly available nowadays, however. The problem is, therefore, to do the best that can be done with existing conditions, which are likely to mean a small one-roomed cellar with enough small windows to keep it well lighted, a concrete floor, and a hot air or a steam furnace. With a cellar of this kind it is next to impossible to keep the temperature low enough or the air moist enough to have vegetables keep as well as they should. Usually, however, there is space enough to partition off a small room to be used for vegetables alone, where conditions can be controlled independently of the rest of the cellar. This need not involve a great deal of expense. Rough pine 2 by 4's run from the floor to the ceiling, spaced 32 inches apart to centres and then covered inside and out with "wall board" which can be obtained in strips 32 inches wide, and in any length desired up to 12 feet or so, will give a substantial partition with a 4 inch dead air space that will effectively keep out the heat from the part of the cellar in which the furnace is situated. If the strips of wall board are bought of the right length there will be little or no sawing and fitting to be done and necessitate not more than a day's work in putting up the whole thing. Double doors should be placed at the most convenient point in the partition. These also can be made of wall board on light wooden frames; or secondhand doors which can usually be obtained at a very reasonable figure.

Ventilation is an important point. That part of the cellar or other room which you plan to use for storage purposes should be provided with at least one and preferably two windows. They need not be large, but one of

them at least should be well up to the top of the cellar or room. These windows also should have double sashes or be provided with wooden shutters, especially in sections where the temperature goes much below zero. In case only glass is used, a substantial shade or curtain of burlap or some other material should be supplied by which the room can be kept perfectly dark.

If there will be more than a few bushels of such bulky things as potatoes, beets, carrots, turnips, etc., to be stored for the winter it will be advisable to provide bins of suitable size and so arranged that the boards on the front sides will slip into place loosely and can be removed. Substantial shelves over the bins will give practically as much space for putting barrels, crates, boxes, etc., as would be had without them. By making preparations of this kind in advance to utilize all the space available, a very generous winter supply of vegetables can be put into a small space.

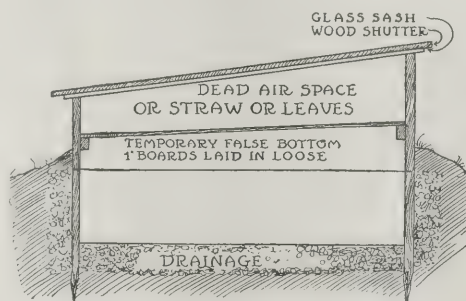
A room 8 or 10 feet wide by 12 or 15 feet long will accommodate enough of all of the vegetables mentioned above to see the average family through the winter.



The cold room will keep most crops

No Cellar! Then What?

IN MANY cases, however, there will be no cellar available. The best substitute is a small room or a large closet, which can be used exclusively for a store room for this purpose—if possible the coldest room in the house, and on the north or west side. If necessary a partition (like that already described) can be



A hot bed can be pressed into service

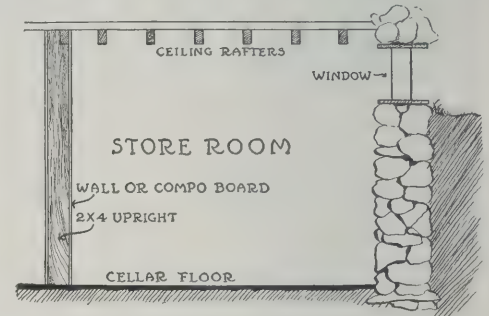
put in with little trouble. Make provision for ample ventilation and for keeping the room dark. If it can be provided with a window or a small door through which things to be stored can be taken in directly from the outside instead of being hauled through the house, that will of course be a great advantage. A few steps or a short ladder against the outside of the house will often make it possible to utilize this means of bringing things in.

The Time-Honored Pit

EVEN where there is no cellar and no room available in the house which can be used as a storeroom, provision for keeping a good supply of vegetables can be made without a great deal of trouble. A "vegetable pit" may be made in any well drained position. This is often so arranged as to form a com-

bination vegetable pit and deep hotbed. As the winter supply of vegetables will be pretty well used up by March or April the frame can be used after that date for starting the spring supply of vegetable plants.

Where even a frame pit of this kind is not available or there are more of the bulky things than there is room for in the cellar or store room, a good many of the vegetables may be kept in a simple trench or pit made in the open ground and given suitable protection. It is, of course, essential that good drainage be given, as any water collecting and standing in the bottom will mean sure ruin to the things stored.



Detail construction of the store room

Putting Away the Foods

THE vegetables easiest to store for the winter are potatoes, onions, and cabbage. Potatoes may be kept either in bins or tight or slatted barrels, or if more convenient, in bags. They should be well dried off before being put into storage, but not exposed to direct sunshine even in bags for more than half a day or so after digging, as they will very quickly "green up" and become bitter in taste. To keep them at their best maintain a temperature at as near 34 to 36 degrees as possible. For some weeks after storing, when the outside temperature will average a good deal higher than this, the windows or ventilators should be kept closed during the day and opened at night. In this way the average temperature of the cellar or store room can be kept 10 degrees or so lower than the temperature outside.

Onions, (which are harvested in August or September considerably before potatoes usually are dug) are best not put into winter quarters until danger of hard freezing weather. After harvesting store temporarily in some open shed or other sheltered place where they can get all the air possible while being protected from rain and early frosts. After the tops are thoroughly dried they are cut off and the bulbs stored in regular onion crates or in slatted barrels which permit free circulation of the air around and through the bulbs. This is highly important, as otherwise they will "sweat" and either sprout or rot, in either case being unfitted for going through the winter. While potatoes will keep as well or even better stored directly on a dirt floor, onions must be kept away from any source of moisture. The white varieties of onions and the extra large or "Spanish" type, such as Prizetaker, Giant Rocca, Denia, etc., are not as good keepers as the medium size yellow and red sorts, such as Yellow Globe Danvers, Southport Yellow and Red Globe and Red Weathersfield. The former therefore should be used first if one has both types to store. In putting up onions for storing it will pay to look them over individually before putting them into winter quarters and sort them out, placing the most perfect and firm specimens by themselves and using the others first.

While cabbage will keep in a cellar or store room where a low temperature can be maintained, part of the crop should be put in a pit or trench for spring use as it will keep longer there than indoors. Where there is not ample room in a cellar, space may be saved by taking the heads up with the roots attached, tying several together and suspending them from hooks or nails in the cellar rafters. For this purpose ordinary "corn ties" of stout tarred string with a wire clip at one end for fastening are very convenient. The heads to be stored in a trench should have the stems and most of the leaves left on and be packed in an inverted position.

Keeping the Root Crops

THE various "root crops," including beets, carrots, turnips, rutabagas, parsnips, salsify and winter radish are also easily kept, but to remain in the best of condition require more moisture than potatoes. For that reason they do best if packed in sand or light soil. This, however, has some objections as it is very heavy to handle and in case a store room in the house is being used involves a considerable "mussing-up." Sphagnum moss can be used as a substitute for sand or soil as it holds moisture for a long time and has the advantage of being clean and very light to handle. The method of packing vegetables in moss is shown in the photograph on page 95. These crops may be left in the ground until danger of hard freezing weather. Before storing the tops are removed, but they should not be cut off too close to the roots. Leave half an inch to an inch of the stems with the roots. Store as soon as possible after digging, so that they will not be exposed to the sun and wind. A store room, being more dry than a cellar, is not so satisfactory for storing vegetables of this kind; they may, however, be easily kept in a trench or pit, which will bring them through in the best condition for use in late winter and early spring. Parsnips and salsify, being perfectly hardy, may be left out where they grew for use as soon as the ground thaws out enough to make it possible to dig them.

Celery is one of the most appreciated of winter vegetables, but requires special attention in preparing for storing. The part

of the crop to be used during fall and early winter may be kept most conveniently in a trench out-of-doors. This should be dug about a foot wide and deep enough so that the plants when packed into it upright will come about level with the surface. They are put in with the roots and soil on, but dry when packed away. Upon approach of severe freezing weather the trench can be covered up with a mulch of marsh hay, straw, or leaves. For the winter supply use narrow boxes about a foot wide and deep enough to take the celery pretty near to the tops of the leaves when packed away in an upright position. An inch or two of soil or light sand is placed in the boxes and made moist before the plants are put in. These boxes can be placed in a cellar or store room. They should be examined from time to time and if necessary given enough water to keep the plants from wilting, applying it to the roots only. Even though quite green when put away the stalks will come out white and crisp when they are wanted for use.

Warm Temperature Vegetables

SQUASH, pumpkins, and sweet potatoes, unlike all the vegetables mentioned above, which keep best at a temperature a few degrees above freezing, will keep in a fairly warm place, 45 degrees or more, and as dry as possible. Where there is an upstairs room, a closet or an attic with a chimney or stove pipe going through it, it is an easy matter to arrange a few shelves on which to store these things and in this way they may be kept until well into the spring.

Tomatoes, Corn, and Cauliflower After Frost

OF THE several vegetables which may be stored for some time, thus having them for a number of weeks after they are usually "out of season," tomatoes, sweet corn, cauliflower and melons are the most important. Tomatoes which have attained nearly their full size will ripen up gradually after being picked if kept in a cool, shady place. Put in the window in the hot sun, as they frequently are, to ripen, they merely "cook." The fruits to be ripened should be picked with the greatest care and either wrapped individually in tissue papers or packed in excelsior or dry sphagnum moss or dead grass in small crates or in a cold frame where they can be covered when a dangerously cold night threatens. A few of the best plants may be taken up by the roots after the ripe fruits have been picked and hung up in the cellar or store room or a frost-proof shed and will keep in good condition for a long time.

Mr. Robert Livingston, of Ohio, well known as the originator of so many splendid varieties, thinks the best way of preserving tomatoes for winter is to take ripe and sound fruits, free from any cracks or blemishes; place in a stone crock and pour over them cold, very strong brine. Cover the crock with a clean, white cotton cloth held in place by an inverted plate. Keep the receptacle in a clean, dry cellar. To prepare the tomatoes for use, soak them in fresh, cold water for 12 to 24 hours, when they may be peeled and sliced like fresh fruit. When handled in this manner, tomatoes keep from four to six months.

Sweet corn, of course, is likely to succumb to the first frost. If, however, the plants are cut—preferably just a day before the first freeze is to be expected—and placed in small shocks the mature ears will remain in fair condition for quite a long time, as the sap in the

stalks and leaves keeps the ears from wilting as they would if pulled off. They can then be gathered as wanted from the cut stalk and while not so good as summer corn fresh from the living plants will be considerably better than having none at all.

Cauliflower, while similar to cabbage in many respects, cannot be stored in the same way. If, however, the plants which still have immature heads or "buttons" on the approach of freezing weather are taken up by the roots and set closely together in a cold frame or hot-bed and given an occasional watering if necessary to keep the soil moist, they will continue to develop and keep fresh and plump for some weeks.

Brussels sprouts—another cousin in the cabbage family—are so hardy that they can be left out of doors where growing without any protection for use up until Christmas or even after.

Nearly mature plants of lettuce and endive can be put into the frames in the same way, care being taken to keep the foliage dry and the soil moderately moist. All these things should be protected from hot sun by muslin covered sash or some similar device.

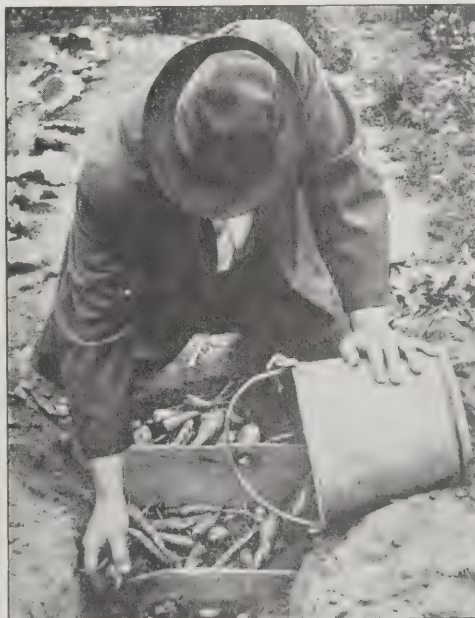
Peppers, eggplant, melons and cucumbers may be picked and stored as described for tomatoes and will keep in good condition for a considerable length of time. The greatest care should be exercised, however, to get good sound specimens and to handle them like soft-shelled eggs.

The temperature for cauliflower, lettuce and endive handled as described above should be kept as cool as possible down to 35 to 40 degrees at night, while for tomatoes, melons and the other things mentioned, ten or fifteen degrees more will be better.

The most careful examination must be given everything that is to be stored before it is put into winter quarters. With both fruits and vegetables it is preferable, where convenient, to go over everything as late as possible in the season. It will frequently be found that some specimens that looked perfectly sound and healthy at harvest time have begun to show signs of spoiling in the following few weeks. If these are thrown out or put aside for immediate use it will often save the remainder.



Remove the tops from parsnips in preparing for storage



By keeping carrots, beets, etc., in compartments they are easily reached

Making Next Year's Garden Soil Better

H. F. BUTTON, N. Y. Specialist in Soil Fertility
State School of Agriculture

[EDITOR'S NOTE: Now, as we stand with the season's experience behind us and the certainty of a needful season ahead, is the right time to plan to bring our garden soil nearer to its maximum of productiveness in order to secure the best returns from our labor and seeds next year.]

THE problem of a garden soil differs from that of a field soil only in its intensity. In field crops the amount of labor, per acre, is much smaller and the interest on the land is less, making it possible to secure a profit from lands of less productivity. In a garden, on the other hand, the amount of labor is very great and the soil is usually of so much greater value, that, unless the soil is kept at its maximum of fertility, the overhead expenses will make the garden show a net loss, instead of a profit. The problem of maintaining this high level of productivity, may be properly considered under three headings:

1. *Physical factors*, which include the amount of available water, the size of the soil particles, the number and size of the air spaces, drainage, temperature, and color.

2. *Chemical properties* of the soil, which include the amount of available nitrogen, phosphorus, potassium, calcium, etc.

3. *Biological factors*, which include the presence of beneficial or injurious animal life and the proper relations of bacteria.

The Part of Water

THE best garden soils are rather sandy in texture, although this makes little difference to the person whose soil happens to be of clay or silt. The sandy soils are more easily worked and give the more ready response to the fertilizer applied.

A good garden soil is usually rather porous, and contains in the neighborhood of fifty per cent. of pore space, which allows of rapid movement of water and air. Soils of this nature do not hold quite as much available water as clay loams and for that reason every effort must be made to increase the water-holding capacity, as it is only the water which is held on the surface of the grains in the form of a film which is available to plant roots. It is necessary to remove by drainage any surplus or free water which may occur. [On most Long Island soils nature has provided such excellent drainage that this is not important, but in other sections, the first requisite to success is a series of tile drains, laid parallel, two and a half rods apart and forty inches deep]. Proper drainage admits air to the lower levels of the soil and increases the depths of the roots, and insures the crop against drouth. In addition to this it enables the gardener to work his land immediately after a heavy rain and thus keep up with a growth of weeds, which thrive as well as cultivated plants under such favorable conditions.

The Organic Matter Sponge

NEXT to drainage, the most important factor in the control of soil moisture is the presence of large amounts of organic matter. Just as a sponge holds more water than a handful of gravel, so a soil well stored with humus holds more than any texture of soil which contains a less amount.

The intensive cultivation which a garden receives, permits rapid decay of this organic matter, and for this reason a garden soil does not long remain in the best condition of fertility unless large applications are made of stable manure, or some such cover crop as crimson clover or winter vetch. As the garden is often in use from earliest spring until

late in the fall, it seems impractical to raise any large amount of green manure, and for this reason gardeners always depend upon very heavy applications of stable manure to maintain the proper amount of organic matter in the soil. The presence of this organic matter in the soil increases the absorption of heat, by making it dark in color, and raises the temperature several degrees. The oxidation of this organic matter also produces a considerable amount of heat, which has been estimated as the equivalent of burning a ton of coal per acre a season.

The Garden Compost Pile

ONE of the most ready methods by which a gardener can add organic matter to his soil is by the use of a compost heap. Some old boards should be used to make a pen at least ten feet square in the corner of the garden, into which should be thrown all weeds and parts of vegetables which cannot be used in the kitchen. With this should be mixed at frequent intervals, a few shovelfuls of rich dirt from the garden. In a good sized garden there will accumulate, during the summer, several tons of material almost equal in value to purchased stable manure. If the weeds are pulled and thrown into this heap, the fermentation will destroy all the seeds and as many of them contain more plant food than the cultivated crops, the mixture will greatly increase the productivity of the garden.

As the soil is a poor conductor of heat, this organic matter also raises the temperature of fertile soil above that of a less fertile one. The increase of even a very few degrees of the temperature on the soil is highly desirable in an early spring, when it is difficult to get seeds to sprout, or transplanted vegetables to grow properly. A thorough cultivation of garden soil, combined with a large amount of organic matter, is important in maintaining a large supply of air in the soil. This air is necessary for the proper development of beneficial micro-organisms, and in preventing the accumulations of organic acids in the soil, which is often the result of imperfect decay of vegetation.

The Part of Chemicals

THE chemical factors of soil fertility are more readily controlled by the gardener than physical factors, in fact most people think that soil fertility consists wholly in the addition of large amounts of plant food to the soil. While this is not strictly true it is nevertheless a fact that if plants are to make the largest and economical growth they must have present much more plant food than is actually used; more than ninety-five per cent. of the plant is derived from air and water which are combined by the marvelous alchemy of the plant into such substance as plant fibre, starch, sugar, etc. The small amount of food derived from the soil first is, however, of the greatest importance in promoting the activities of the green leaf and unless all of the needed substances are present, the growth of the plant will entirely cease.

The most important element from the standpoint of the cost as well as from the probability of its being deficient, is nitrogen, which is used by most plants in the form of nitrates. Nitrates may be purchased in the form of nitrate of soda in which form the nitrogen costs about thirty cents a pound.

Unless nitrogen is present in the necessary quantity, growth is slow, the color of the plant is pale and the product unpalatable and stringy. If nitrate of soda is used it must be applied in small amounts at frequent intervals while growth is going on. Many gardeners dissolve nitrate of soda in water at the rate of a tablespoonful to the gallon which is quite strong enough to supply the needs of our plants.

A good quality of stable manure contains not more than ten pounds of nitrogen in a ton and this is in a rather slowly available form. When twenty or thirty tons of manure are applied per acre, each year, it will supply as much nitrogen as can possibly be used by the vegetables, but as so many horses have been replaced by motors, it is becoming increasingly difficult to secure large amounts of stable manure. A plot 100 x 40 ft. is almost one tenth of an acre, and two two-horse loads would suffice for a garden already in a state of good fertility. Three two-horse loads would be a heavy dressing.

Nitrogen is of particular importance in promoting the leaf and stem growth of plants, particularly cabbage, lettuce, and similar vegetables. Where the fruits or the seeds are the desired crops larger amounts of phosphoric acid must be used which may be applied in the form of acid phosphate, used at the rate of five hundred pounds to the acre.

Bone meal is a well and favorably known source of nitrogen and phosphoric acid, but as it is slow in its action, it is not well to depend upon it for crops grown the same season. It should always be used for crops like asparagus or rhubarb, which remain several years on the same ground.

Now that our usual sources of potash have been cut off, it is not possible for us to buy any considerable amount in the form of fertilizers.

Most of the potash in plants is contained in the stems and lower leaves which makes an added reason for saving unused portions of our vegetables as a compost.

Lime is needed on almost all garden soils, having an especially beneficial effect on beans, beets, and lettuce which are improved in yield and quality by moderate applications of lime. For convenience in applying, it is best to buy a hydrated lime in paper sacks. A half ton of this applied to an acre every second year will keep the soil in good condition.

Heavy fertilization and thorough tillage always result in a heavy loss of lime in the drainage water and the rapid decay of the organic matter in the soil leaves a residue of acids which must be neutralized if the land is to maintain its fertility.

The Part Played by Lime

THE effect of lime is as largely biological as it is chemical, and a fertile garden soil is an exceedingly lively place, swarming with untold millions of bacteria and other forms of micro-organisms, some of which are injurious, others beneficial, and others of no importance to us.

We do know, however, that the most fertile soils contain the largest numbers of bacteria, and we know enough of their effects to be sure that the production of nitrates, which are necessary to feed the plants, is entirely due to the activity of three separate groups of bacteria,

which only thrive in soil neutral in its reaction. It is, moreover, certain that the bacteria which enable the leguminous plants to use the nitrogen of the air thrive best in the presence of lime. It is known that there are found in many soils, organic products which inhibit plant growth, even when present in minute amounts, and that these products are not so often found in soils which contain a proper proportion of lime.

Present Time Opportunity

SINCE it is becoming increasingly difficult to secure stable manure in sufficient quantity it behooves the gardener to make the

most of his own resources which include the growing of green manures whenever the land is not busy with a saleable crop. After the middle of August certain parts of the garden are left bare while others will retain their crops until late in September or even October. Crimson clover is the most valuable of all the green crops and as the seed is cheap it should be sown on every square foot of available soil using not more than a half pound of seed to the square rod. As it is sometimes difficult to get crimson clover properly started in dry weather it is wise to put on the same land at the same time a seeding of rye which is the most reliable of all green cover crops. It has such a remarkable ability to start

growth in dry ground that it can be depended upon to grow when all else fails. [In the North October will be too late to sow any cover crop other than rye. Ed.] When the seed can be obtained it is well to use in addition to these a sprinkling of winter vetch as the three species together would make a larger and more useful growth than any one alone. Such a covering of green manure will be sufficient to add most of the nitrogen necessary for the next year's garden; will supply a quantity of organic matter sufficient to carry a crop through an additional two weeks of drought and will save from leaching out in the drainage water this winter as much plant food as is required for next season.

Using Fruits and Vegetables Wisely

CROPS HAVE BEEN GROWN, CANNED, AND STORED.—THEIR PROPER USE ON THE TABLE IS THE PRESENT PROBLEM OF THE PEOPLE IN ORDER TO REALIZE TO THE LIMIT THEIR POTENTIAL VALUE

[EDITOR'S NOTE: This article, which has received the approval of the U. S. Food Administration, has been prepared by recognized authorities for the purpose of giving those who own gardens a realization of the great part they are able to take in the existent crisis. It is not the part of wisdom to endeavor to live without proper food at proper times, and in proper quantity. We have, however, been prone to eat without regard to any far-reaching influence because we lived in abundance and luxury. Now, with the need of all the peoples of the world pressing for our considerate attention, we must choose our food for the best interest of the whole world. The home gardener's patriotic duty is clearly laid down: He must utilize to the fullest extent the food materials easily at hand, so as to liberate elsewhere those other food materials that are more concentrated and more easily transported. And it is not a hardship—only learning to live up to opportunities.]

IN THIS fall season, with plentiful fruits and vegetables surrounding us on every hand and with the fear before us of a scarcity of food in all lands, it is worth while to think whether we may not use more freely and more wisely these supplies that lie at our doors.

If we live in the country, fruits and vegetables are not only abundant but cheap and may often be had for the gathering; we who have our own gardens, need no inducement to use freely the material that we have planted, tended and watered through the long summer; those who live in a city apartment, and have had no garden to plant, and if the fruits and vegetables are so expensive as to seem almost like luxuries, still must use them if at all possible, both because they are good for them and because they may be made to take the place of some of the foods upon which we have been accustomed to depend. Even the many who, in this time of high prices, can only use the cheaper foods must still have at least the small amount of fruits and vegetables that are necessary for well-being.

Most of us have thought of the grapes or cantaloupe we eat for breakfast, or of the orange salad for lunch, or the apple compote for dinner largely as a matter of flavor, an additional gratification for the palate; we have used vegetables chiefly to give variety. We have, of course, known in a vague way that these foods are desirable from the standpoint of health, but how or why we have hardly cared to question.

To-day there has come an emergency. We are asked to eat wisely and well. We are asked to change some of our food habits. Among other things we are asked as far as possible to make use of the "perishables" that nothing may be lost. If we are to do this in the right way and make these take the place of some of our usual foods, we not only must know their real food value but we must know as well the fundamental needs of the body and how these are supplied by the different foods. Only then are we ready to use in place of part

of our meat, our cereals, and our sugar, these foods that are difficult to transport, when transpiration is needed for other purposes, and that may play an important part in the present situation because they set free some of the staple foods for the use of our Allies, for the use of our own people who are living on a minimum amount, and for our soldiers. In ordinary times we may "muddle-along" in our well-to-do fashion, with the comfortable assurance that if we are using an ordinary mixed diet we are probably getting what we need. To-day we must know; we may no longer guess.

WE ALL know in a general way that our food furnishes material to build the body and to repair the waste that is constantly going on as a part of the life process; that it furnishes fuel, which yields heat and gives the energy not only for the work that we do but also for the internal work of the body—such as the beating of the heart. We have only lately begun to understand that this is only part of the story, and that the food furnishes also certain things that we may call regulating substances.

Some of these are the mineral salts that also act as building material, some are acids such as add flavor and refreshment to our fruits, and some are the newly discovered substances, as yet unnamed, whose nature is unknown, but which seem necessary to health and growth. These have sometimes been called "vitamines" and are sometimes spoken of simply as "fat soluble" and "water soluble" substances. The fat soluble substance is found in milk fat, in egg yolk, in meat fat, and in the green leaves of plants. This seems to be especially necessary for children since growth does not take place without it. The water soluble substance is more widely distributed and is found in fruits and root vegetables and in some amount in most of our common foods except fats, cereals that have had the outer coating removed, and such foods as sugar and commercial starch.

"Food" or "Fuel" Values?

OUR FRUITS and vegetables, with a few exceptions, have only a small amount of that indispensable kind of building material found in meat, milk, eggs, and grains, called by that much shunned name protein. Only a few of them can furnish much fuel in the form of starch, and still fewer offer it in the form of fat. All ripe fruits and many vegetables contain sugar. But it is especially because of the abundance of mineral matter such as iron and lime salts, and of the regulating and growth-promoting substances, that we need always include at least some of these foods in our diet. They furnish, too, some of the indigestible matter that we may call roughage and that must be provided to give enough bulk to our diet. The fruits are nearly all somewhat laxative, due not only to the roughage but to the mineral matter and acid present. They are a good supplement to cereals, meat, and eggs. Most of the vegetables and fruits, even acid fruits, such as oranges and lemons, after they are utilized in the body are no longer acid but alkaline.

WE FIND all the time different estimates of the food value of fruits and vegetables. One picks up a paper and finds that cabbage, for example, has "very little food value" and is an extravagant addition to the diet. Some else will say that the same food is exceedingly desirable. The truth depends upon our interpretation of "food value." If we mean by this the fuel value of the food, i. e., if we mean that the food will produce a large amount of heat or power to work, in other words, that it has a high energy value, we must agree that very few of our fruits and vegetables have a high food value. Perhaps we might better say that they have a high value as food.

A Word to the Cook

SINCE we use our vegetables largely for their mineral salts, we should see that in the process of cooking this mineral matter is kept and not thrown away. Steaming the

vegetable, or, if it is cooked in water, using so little water that it may be served with it, or saving the water for the making of cream vegetable soups, are all ways of doing this. It is stupid to choose vegetables for our diet because of their one special value, and then throw away much of the material that gives them that value. Delicious soups may be made from the water in which cabbage, cauliflower, asparagus, peas, corn, spinach and other vegetables have been cooked.

In trimming celery for salad the leaf and the tougher stalks may be laid aside to dry. The tougher leaves of the spinach may also be dried. Part of the bunch of parsley or mint, onion or carrot, that is not used, even the peeling and tough stems of mushrooms, may be dried, and all of these may be used for soup or flavoring.

For drying these small amounts no special apparatus is necessary. A tin plate kept on top of the gas oven, or in some place near the stove where it will get a small amount of heat, is all that is needed. In the same way, if an ear or two of corn is left from the dinner, it may be cut from the cob and dried and used another time for a vegetable or for soup. "Dry as you go" might be the motto for this method of saving.

EMERGENCY USE

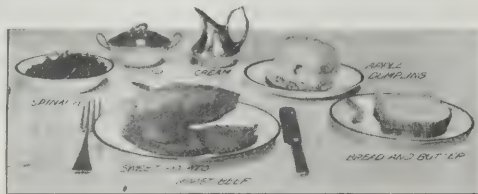
To-day the question arises how far can we use these fruits and vegetables not merely for their own value but to take the place of other foods. We can use them safely in large amounts if in this generous use we do not neglect the fuel and body building foods, and if we choose them carefully we may use them as meat savers, cereal savers, and sugar savers.

Fruits and Vegetables as Meat Savers

MEAT is one of the foods upon which we are accustomed to depend for much of our body-building material. The best vegetables to take its place are peas (including the cow pea so common in the South) and shelled beans, such as kidney, lima, and soy beans. These have a fair amount of this body-building material that is so essential not only to our welfare but to our very existence. This protein is not of quite the same kind that is present in milk, eggs and meat, so that it may be used only to supply part of the whole amount we need. It is better then to think of these vegetables as meat savers rather than as meat substitutes, but the addition of a very little meat, or milk—even skimmed milk—or egg is all that is necessary to supply the lack. One half a pound of shelled green peas or beans, or one fourth of a pound (one cup) with a cup of skimmed milk or an egg, gives as much body-building material as one fourth of a pound of beef.

Other vegetables may be used to extend the meat flavor and to make it go as far as possible. Many of us eat too much meat. If we can eat

less and yet have the flavor that we like we shall be better off and just as happy. If we are accustomed to use only a little meat, it is all the more necessary that we should get all the satisfaction possible out of it. In our stews we might use one fourth as much meat as we have been accustomed to use, and double or triple the amount of vegetables. A satisfactory dinner may be made from a very little left-over meat, put into a casserole or covered



A well chosen dinner, giving the right proportion of muscle-building food, with enough starch, sugar and fat to give the needed fuel. The spinach contains iron and other mineral matter, and some of the other foods contain the regulating substances so necessary to health and growth.

The dinner on right is less expensive, but it is as well



selected. Most of the protein is supplied by the bread, since the cereals are the cheapest source of this muscle building food, and by the baked beans, that like all the legumes contain a very large proportion of it. Even the least expensive diet must have some fresh vegetables or fruit. Here cabbage is chosen

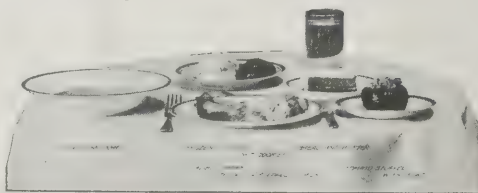
dish between thick layers of sliced carrots or turnips, with a little water and seasoning added and perhaps a little left-over gravy, or broth, and the whole cooked in the oven until the vegetables are thoroughly done. The New England "boiled dinner," with its many vegetables and its small amount of meat, is an old method of carrying out this plan.

Cereal Saving—Potatoes

THAT our present need is to save our cereals, especially wheat, no one questions, and for this we must look chiefly to the potato and the sweet potato, among vegetables;

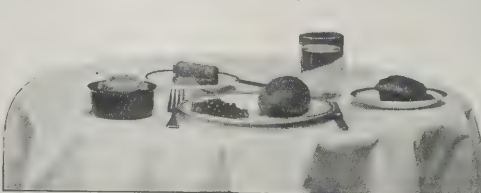


This dinner looks attractive, but when we study it we find that too many of the foods that are used in it are chosen from the group that contains a large amount of fat. The dinner consists of cream of tomato soup, mutton chops, creamed potatoes, greens cooked with bacon or pork, and suet pudding with hard sauce. It contains over 3 ounces of fat; 1½ to 3 ounces is all that should be used for the whole day



This dinner has too much of the muscle-building food called protein. Fish, eggs, nuts and beans each may be used to take the place of some of the meat in the diet. Here we have them all, with meat besides.

The dinner shown to the right has too many foods from



the two groups that are rich in sugar and starch. Meat pie and baked potato, green peas, bread and butter, and cottage pudding with chocolate sauce, in one meal show how by unwise choice, one characteristic of the well-chosen diet—a right proportion between protein and fuel—was omitted

among fruits we may use the partially ripened, cooked banana.

The potato, not only in common usage but from a dietetic standpoint, is in a class by itself among vegetables. One may live entirely upon the potato, as some Danish investigators have done for several years.

Five ounces of potato yields as much fuel value as one ounce of cereal, uncooked, but since in cooking the cereal we add from 2 to 3 times the amount of water, we must serve about twice as much potato as cereal to give equal food value. A small potato (4 or 5 to the pound) has as much starch as a large slice of

bread (1 oz.), though it contains a little less of the body-building protein. Now that potatoes are again abundant we may eat less bread and use more potato. In America the average consumption of potato is about one-half pound per day for each person, and this might be materially increased. The potato should be cooked in its "jacket," for much is wasted in paring and the pared potato loses more of its mineral salts in the water than the unpared.

Fruits as Sugar Savers

FOR saving of sugar we depend chiefly on fruits rather than on vegetables, though beets, carrots, parsnips, artichokes, and especially the sweet potato, contain a good deal of sugar; while onions, cabbage, some kinds of peas, string beans, sweet corn and

squash also contain amount of sugar.

We sometimes divide our fruits into flavor fruits and food fruits, but the dividing line between these is very indefinite. Bananas would naturally fall into the food class since the banana contains a large amount of real food in the form of starch—or sugar in the ripened banana. Oranges and peaches, on the other hand, belong to the flavor fruits, with less than half as much fuel value as the banana. Grapes, with their large amount of sugar, plums, and cherries come in between. We need to remember this in planning our bill of fare. Dried fruits—dates, figs, raisins, prunes—have so much sugar that they may well be used in place of candies.

While the raw fruits to many are the most attractive, some find them more difficult to digest than the cooked fruit. While we may use cooked fruits in combination with cereals and in other ways for puddings and desserts, some of the simplest ways of cooking them are quite as satisfactory. The apple sauce made from cooking the whole apple, skin and all, and straining it, uses every particle of the flavor and the mineral salts present. Pears baked for three or four hours in a deep dish, with a very little water, either with or without a

small amount of sugar, turn such a beautiful red that they are a delight to the eye as well as the palate. Baked quinces prepared in the same way, either with or without the addition of apple, is a use of the fruit that might be more often made. Prunes may be cooked without sugar, and to

many are much more palatable. If the prunes are soaked over night, and cooked in the water in which they were soaked until the water is reduced to a thick syrup, one has an article little like the ordinary stewed prune.

Jams in Place of Butter

JAMS and preserves, through the addition of sugar, are foods of a high fuel value.

Jam is regarded as of great importance on the Continent of Europe to-day and all the Continental governments have taken steps to procure sufficient jam in order to cover this need in the diet.

"Bog" Gardening With Native Plants

By NORMAN TAYLOR

Curator of Plants
Brooklyn Botanic Garden

A PRACTICAL SOLUTION OF UTILIZING A WET HOLE THAT IS OFTEN A TROUBLESOME SPOT—CHARMING NATIVE PLANTS THAT DELIGHT IN SOUR, UNDRAINED SOILS

THE reason for having a bog garden is that in it may be grown many very interesting plants that cannot be grown in any other situation; and, besides, many ordinary swamp plants can also be grown along its edges.

There must be a clear distinction made between bogs and other wet or swampy places before bog gardening can be a success. In the marsh or swamp the drainage is usually fairly regular and free; in the true bog the drainage is practically nil, or only free during the spring thaw. Because of this lack of drainage there is in all bogs an accumulation of acidity in the bog-water, which is strongly acid and dark colored in some glacial potholes, more moderately so in some of the partly drained bogs of the coastal plain regions of the country. There is usually, but not always, a deficiency of lime in bog soils, and in nature there is a very large percentage of mycorrhizal plants found in them. The relation of the mycorrhizal habit of getting food and the acidity of the bog is a very delicate and complex one and little is actually known of it. But experience has shown such a relation to exist.

Making an Artificial Bog

IF YOU have an undrained or a poorly drained area about your garden the problem of having a bog garden almost solves itself. But the demands of others who wish to grow the many beautiful species that will only become naturalized in such places, has led to the construction of artificial bogs. These may be of any size from a few square feet to comparatively large areas, and methods of construction must vary according to the nature of the subsoil. In places where there is a layer of hard-pan and the downward drainage is poor, it will only be necessary to dig out the



Fringed Orchid (*Habenaria*) one of the most showy native plants that can be cultivated only in a bog

desired amount, fill in enough blue clay to make the basin water tight and then put in the mixture to be described presently.

A more permanent and satisfactory type

of construction is to make the basin of concrete, the walls and floor of which should not be less than six to eight inches thick, to prevent the concrete from cracking during frost. Waterproof the concrete, and because in all concrete mixture there is lime, it is best to smear clay over the walls and bottom. The completed bog, whether of concrete or merely scooped out of the ground, should be two feet deep, its edges practically flush with the surrounding ground. If of concrete, sods will easily grow over it and the hard line of the rim may thus be completely hidden. Be sure before filling with the mixture that the tank is watertight, just as though it were for a Lily pond. The shape of the structure, whichever type of construction is used, must be a matter of individual taste. While informality is the essence of bog gardening a "regular irregularity" is most to be fought against. Ten minutes' observation of natural bogs, their shapes and shore lines will put the imaginative bog gardener in possession of all the suggestions needed, to prevent putting impossible bog gardens in impossible places. As a cardinal feature remember that the drainage from the surrounding region should be all in, not out.

The management of the bog garden requires some skill and observation. As the amount of evaporation from the surface is enormous, water must be added, either artificially or naturally. Strive to keep the bog just full enough not to overflow, thus keeping the whole sponge wet, but preventing the leaking out of the valuable acids that are the life of the bog. Both for the effect and for the good of the bog it is desirable to cover all the open spaces in it with live sphagnum moss, which when once established, will make a delightful carpet.



The "bog" at the Brooklyn Botanic Garden, was shipped from the New Jersey pine barrens and placed in a prepared basin of concrete lined with clay. Anything that came up was allowed to grow, and any undesired plants were not retained. Others are added from time to time



The Sundew (*Drosera intermedia*) an insectivorous plant which traps flies, etc., with its glandular hairs

Making a Bogplant Soil

THE mixture to go in the bog garden is preferably one that has come out of a Cranberry or natural bog—muck, twigs, water, slime and all. From such a mixture a host of very interesting bog plants will spring up the first year and these may be isolated in clumps after the first season. A good plan when following this procedure is to let the inner part of the bog "run wild," clearing a strip of a foot or two all round the edges, for the cultivation of species needing, for exhibition purposes, more open spaces. Provision should be made, either in this strip or in any other open place in the bog for two things. (1) A place where only sand and peat soil, mixed about half and half, is found, to be used for certain plants that are described in the lists following: and, (2) some small space of practically open water where the very interesting Bladder-worts may be grown. The latter situation can be made by scooping out the muck for a few inches, filling in with sand and peat soil, leaving about five to six inches depth of water.

For those who cannot get muck from natural



The Pitcher plant catches insects in the leaf-like pitchers and feeds on them. Plant shown in bloom

bogs a soil can be mixed of leafmold, sand, and twigs and leaves of the Oaks or of Mountain Laurel or Rhododendron refuse. Guard against getting the mixture too heavy and clayey. Sand and plenty of twigs and leaves of the species mentioned will lighten up the mixture—leafmold makes it more heavy.

Plants For the Bog Garden

MANY bog plants are very showy and worth cultivation because of this. Others, such as the insectivorous kinds, are among the most wonderful plants in nature, for they have the unique distinction of being able to digest animal matter directly, a habit otherwise unknown in all the realm of vegetable life. The devices for catching and keeping unwary insects are ingenious beyond the imagination of most of us. Darwin's "Insectivorous Plants" is more fascinating than any fairy tale.

Many bog plants are necessarily omitted from the following list, and it should be remembered that a number of purely swamp species, not mentioned here, can also be grown in bogs. The delight of a bog garden lies in the fact that many, very many, of the bog plants may be collected in the wild and transplanted. For those who cannot collect there are dealers who specialize in water plants.

SHRUBS FOR BACKGROUND EFFECTS

Rhodora (*Rhododendron canadense*), purple flowers before the leaves in April and May, 3 to 5 ft.

Swamp Azalea (*Azalea viscosa*) white or pink flowers after the leaves in May or June, 5 to 8 ft.

Sheep Laurel (*Kalmia angustifolia*), purplish-pink flowers, summer, 1 to 2 ft. Also *Kalmia glauca* in northern regions.

Leather Leaf (*Chamaedaphne calyculata*), small whitish flowers along one side of the branches, May, 1 to 2 ft.

Labrador Tea (*Ledum latifolium*), white flowers in terminal clusters; leaves russet-brown below, 2 to 5 ft.

Wild Rosemary (*Andromeda polifolia*), drooping white flowers, early spring, leaves silvery below. Under 2½ ft.

Creeping Snowberry (*Chiogenes hispidula*), prostrate, with tiny white flowers and snow berries. Leaves dark, evergreen.

There are many others but those named are the best for the temperate regions of the United States. In the South many others are to be found.

PERENNIALS, GROWN CHIEFLY FOR THEIR FLOWERS IN ANY OPEN PART OF THE BOG

Water Arum (*Calla palustris*), a greenish-flowered plant, having a conspicuous white spathe. Showy and hardy.

Calamus (*Acorus calamus*) sword-shaped leaves and a fingerlike flower cluster; the root is the medicinal calamus.

Violet (*Viola lanceolata*), a delicate, very free flowering violet with lance shaped leaves.

Milkweed (*Asclepias lanceolata*), a deep red milkweed, very showy, and with smooth, narrow leaves.

Purple Marshlocks (*Potentilla palustris*), a sprawling, rather rank bog plant with purple flowers.

Ditch Stonecrop (*Penthorum sedoides*), greenish-yellow flowers in curved spikes, summer.

Golden Club (*Orontium aquaticum*), very early flowering, and making a patch of gold in March, or April.



Several species of Closed Gentian can be grown only in the bog garden

Buckbean (*Menyanthes trifoliata*), with three-divided leaves and many conspicuous white flowers is a valuable addition.

Swamp Pink (*Hclonias bullata*), flowering in April to May, is our most conspicuous spring bog flower.

There are many Asters, Goldenrods, and Eupatoriums that grow in bogs, as well as some Gentians, but the bog species must be collected from the wild.

IN WET, SANDY PLACES

Here must be grown all the species of Yellow-eyed grass (*Xyris*), curious plants with long, delicate, grasslike leaves and tiny heads of yellow flowers.

Also species of Bunch-flowers (*Eriocaulon*)

should be grown here. They are not large, have sword-shaped leaves and white, erect heads not unlike the everlasting.

With these too, must go the Meadow Beauty (different species of *Rhexia*). Beautiful purplish-red flowers.

All the plants in this class and the following are to be had from dealers in bog plants or collected in the wild. There are others such as *Lophiola*, *Abama*, and *Zyadenus*.

IN OPEN WATER

The Bladder-worts are different species of *Utricularia*, some with purple

and some with yellow flowers, some floating on the surface and supported by air-blisters; others rooting near the edges of the pool.



Ladies' Tresses, a bog Orchid of slender habit, flowers white



The purple Calopogon, one of the most beautiful native bog orchids

The most interesting and delicate of all bog species.

BOG ORCHIDS

Many native Orchids can only be grown in bogs, and from them the following have been selected as the most noteworthy. All are perennials and may be had from the dealers.

Calopogon pulchellus, pink-purple flowers about an inch in diameter, June and July. Leaves grass-like.

Cypripedium parviflorum, a small flowered yellow Lady's-slipper. Raise up so roots are not too wet.

Cypripedium spectabile, showy Lady's-slipper; beautiful rose-purple or nearly white flowers.

Habenaria blephariglottis, a white-fringed Orchid with a showy spike, 1 to 2 ft.

Habenaria ciliaris, yellow-fringed Orchid, very showy spike, 12 to 18 in.

Arethusa bulbosa, beautiful purplish pink flowers, about the last of May, 3 to 6 in.

Spiranthes cernua, white, slender spikes. The Ladies-tresses. Several others, even more slender species are known, but must be collected.

Besides these there are more than forty other species which may be collected by the enthusiast. Nearly all of our most beautiful native orchids are bog plants.

INSECTIVOROUS PLANTS

These will be grown more for their peculiar habits of getting their food and for their odd form than for their beauty. They are of several types; some catch insects in a tube-shaped leaf, drowning them at the bottom of the cup, others have sticky hair to which the insect becomes fastened, and the most wonderful of all, Venus' fly-trap, actually traps its food by a contraction of its jaw-like, prickly leaves. The best insectivorous bog plants are as follows:

WITH PITCHERS: *Sarracenia purpurea*, having short purplish red pitchers, quite hardy northward, our common northern pitcher plant. *Sarracenia rubra*, the red trumpet



The Sheep Laurel, with showy pink and purple flowers in summer, is a useful bog shrub

leaf with tall pitchers.

Sarracenia flava, also with tall pitchers but yellow. *Sarracenia Drummondii*, with variegated pitchers, the largest and most showy of all.

The last three must be taken in during the winter north of Washington, D.C. All are much more showy than the first.

WITH STICKY HAIRS: All the species of *Drosera*, or Sundews, have the curious habit of catching and digesting insects. They are all small plants which should be planted in masses on sphagnum moss. All are quite hardy.

WITH CONTRACTING LEAVES: The Venus fly-trap, a low perennial with two valvelike leaves that contract whenever an insect or other irritation comes between them. Closing up rather rapidly, they are among the most interesting plants to have growing in the bog garden. Not hardy north of Washington, D.C.



The showy Yellow Fringed Orchid is common in many wild bogs

One Successful "War Garden" Effort

THE WORKINGS OF AN ACTUAL CASE TAKEN AS TYPICAL IN LAYING PLANS FOR THE FUTURE ON THE LESSONS OF THE PAST

WHEN the electrifying "appeal" came in late spring the response to the President was whole souled and universal. Wonderful gardens blossomed where hitherto tin cans and weeds abounded. Literally the waste lands were made fruitful. All this, of course, is now history. We saw with our own eyes, you and I, and we marveled greatly that there was so much latent garden spirit needing only the proper stimulus. In large cities like New York and Philadelphia municipal demonstration gardens were planted in the public parks. Boston appointed a special home garden expert. East and west, north and south, gardens were started. The garden clubs turned from "pleasure" gardening to "profit" gardening and lent a hand in starting local action. The boy scouts were enlisted.

Much credit is due the various local communities that took definite action quickly and produced results this year. In some places the final results were not entirely successful, but those communities may learn from the others so that next year's efforts will count on the right side. One of the decidedly successful

centres may be taken as typical. Islip, on Long Island, is selected because it seems to illustrate the practical application of certain lines of action which brought good results.

In April three ladies as representatives of the Islip Women's Suffrage Club, Mrs. Jay F. Carlisle, Mrs. August Belmont, Jr., and Miss Mary Smith, started the home garden movement. Whatever they may have lacked in gardening experience was more than offset by keen interest and close application, resulting in one of the strikingly successful garden ventures of its kind in all the country. At the outset the active coöperation of a skilled gardener was engaged and he gave advice and supervision all through the season. Home gardens were encouraged where the space was available; if not, free garden plots were given to those who had no opportunity at home. In all, about 150 gardens were started and planting charts supplied as guides—these were not ironclad, however, and were subject to variation.

The gardens were divided into four classes, girls, boys, women unaided, and family gardens—four prizes were offered in each class.

The children were given gardens of a uniform size 15 x 25 ft., but were not confined to these dimensions, for a youngster could get more ground and felt able to do more according to his or her size or ability, he was encouraged to do more, but all were cautioned against starting too large a garden and were told very plainly that a garden 15 x 25 ft. well cared for was better far than 30 x 50 ft. only half cared for.

Owners were notified that their gardens would be visited frequently; that the best gardens would be photographed. The coöperation of the "Movie Palace" was here sought and notice given that lantern slides of the prize winners would be shown at the time of awarding the prizes. This had a wonderfully stimulating effect on the younger element, any one of whom would gladly have given almost anything he possessed for the honor of having his garden flashed on the screen as a winner.

Before any actual work was started a lecture (illustrated with lantern slides) was given. This was to teach the beginners the rudiments of gardening, showing how to do the various tasks, but above all why to do them. Such

matters were discussed as, why lime is applied to gardens, the value of manure as a plant food, the place of fertilizers, the purpose of digging, how to make drills, why the soil is cultivated, advantages and disadvantages of artificial watering, tools required and the way to use them. The course in fact was a beginner's A. B. C. of gardening from the digging of the ground to the storing of the crops.

The organizers, working on the theory that anything had for nothing was held too cheaply, agreed to furnish all seeds, fertilizers, and other requisites at cost, and to meet the cases of those who could not afford the expenditure at seeding time arrangements were made for payment when the crops were gathered, or by installments if so desired. This proved a real incentive, better than scattering a quantity of free seed, and then visiting the garden in fall and finding only the garden wreck hidden by a tall monument of weeds; for those who didn't pay cash for their seeds felt that some one had a mortgage on their garden and they were trying hard to lift it and with few exceptions they did.

Home gardens were preferred to community centre gardens for several reasons, firstly, the garden at home was more convenient for the owners to cultivate; secondly, where a number of gardens are closely connected the owners of the poorer gardens get discouraged and give up; thirdly, an hour per day in the garden is vastly superior to one day a week; fourthly, the produce of a garden away from home is liable to waste because of the inconvenience; fifthly, considerable time is wasted in garden centres where the children predominate unless some one is there to look after them.

It was the duty of the instructor to frequently inspect the various gardens, giving lessons to the children on any problem that came up, including such questions as these: What can I do to get rid of ants that destroy my seed? How far apart must I thin my beets? What shall I sow after the early peas and spinach? This idea worked splendidly, it kept up the interest,

because the youngsters felt that they were actually learning something.

The one great stumbling block in teaching children gardening (or anything else for that matter) is to get them to take things seriously and it was thought best to be frank with them at the start, insisting that gardening meant hard work, that successful crops were the result of hard work and plenty of it. This course frightened off a number who wouldn't have

or more a day (or seem to at least) is the critical time in the beginner's garden. Here the big part played by the principal had its effect; frequent visits being made to the gardens, and a word of encouragement here, or a suggestion there, kept many a half inclined slacker close up to the firing line. Any garden enthusiast would have found something worth while in a visit to these gardens during the summer, the originality of ideas displayed showed initiative.

A dozen different types of tomato trellis were found and all had good sound common sense back of them; one garden was neatly hedged with carrots and parsley—practical, sensible and pleasing; in another lima beans and corn were sown in the same hill with the idea of using the corn to support the beans; still another garden was the work of a lad who had but one arm, but he hadn't asked for any handicap and he started from scratch along with the others.

Just think what these gardens meant in this one little community alone! More than 150 plots that had never been planted before, the yield—even though these gardens didn't have anything in quantity that Uncle Sam might send across the water, yet they did have plenty for the families of the youthful gardeners—which released an equivalent amount for shipment abroad.

One of the hardest points to teach was gathering the vegetables when ready. This matter

can only be handled properly by frequent visits to the gardens; there must be persuasion. The youngsters had the idea that the garden was to grow vegetables and that when the vegetables were gathered their gardens suffered somewhat. This, of course, is true as far as appearance is concerned, but not from an economic viewpoint. It took no little effort to convince the youthful gardeners that their peas or beans should be picked.

To sum up this success can be attributed to the following reasons, placed according to their importance: close application of the organizers; frequent inspection of the gardens; frequent and timely advice by some one who knows.



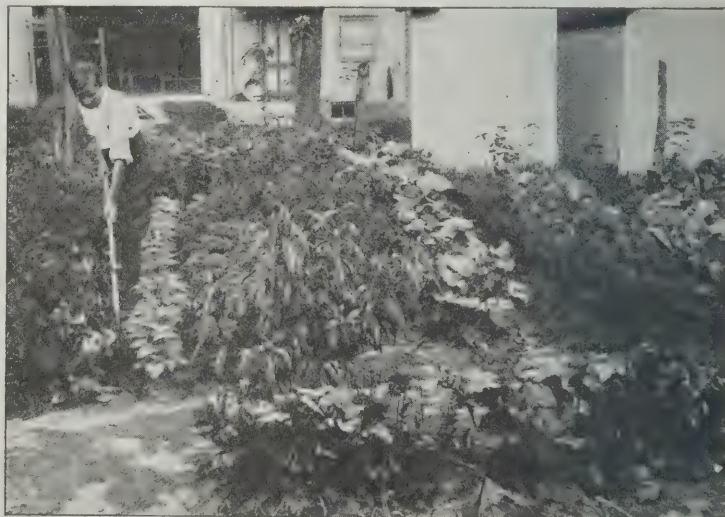
Beans are always satisfying for beginners, for they are not exacting in soil requirements and yield good crops

taken the matter seriously, and so would have given up their gardens at the critical time. Some garden organizers in other sections worked on a different theory, painting the bright side very rosily and thought much had been accomplished by getting a very large number to start irrespective of the chances for a successful conclusion.

Unquestionably one of the greatest obstacles to surmount was the tendency to abandon the gardens during midsummer. Any one can garden during May and June when nature smiles her sweetest, but in July and August, when the sun is strong, when the mosquitoes are thick, when the swimming is fine, and when the pesky weeds grow a foot



This was one of the really successful gardens, neatly ordered and well cared for throughout the season



A back yard that in former years was a rubbish heap literally covered with empty paint cans

THE PATRIOTIC GARDEN

He also Fights who helps

a Fighter Fight - - (H. Hoover)

AT LEAST SAVE SOME OF YOUR WINTER SUPPLY

MAKE YOUR GROUND WORK FOR THE FAMILY & NATION

Message from the Food Administration

THE GARDEN owners of America have it in their power to produce food for themselves and for others, so that the millions of people who face hunger next year can be largely relieved by them. Food raised in American gardens for home consumption next year will enable the organized mercantile interests of the country to build up reserves in supplies to meet these demands from abroad. If the housekeepers and the gardeners work together, we can feed our own army better in France.

The home makers in America can grow food that will serve as ammunition and help us win this war. The result of this year's crops is now being preserved in many ways and placed in our cellars and storehouses. With proper care, we have enough of a supply to carry us through the winter, but next spring the campaign will open again.

In spite of the fact that here and there has been inadequate use of supplies grown, on the whole, the general increase in garden supplies has been of great significance. Next year it must be

more significant and even more intelligently planned, as to planting, as to harvesting, as to marketing, preserving and storing.

At this time, when savings of all sorts are necessary in order to pay for the war, we must try to choose the food crops that are most productive, most economical and most worth while for each individual home and table.

The seed supply of next year must be carefully conserved. Those who can should save their own seed from their own gardens. Every one who takes care of himself in this particular affords some relief to the general strain.

By concerted action in production and in conserving, we can not only support ourselves well, but can care for our own army and for the women and children of those lands abroad which have been devastated by war.

Patriotism can be most effectively shown by non-combatants by contributing to their own support and that of others.

U. S. FOOD ADMINISTRATION

Gardens Add \$100,000,000 to Nation's Wealth O. R. GEYER New York

A BROAD REVIEW OF THE COUNTRY-WIDE SPIRIT IN HOME GARDENS—WHAT "WAR GARDENS" REALLY MEAN

EMERGENCIES which have never arisen before in the history of the country, or in the world for that matter, have given an impetus to the "back-to-the-soil" movement in the cities and towns of the nation which will have an important effect in breaking down the German submarine blockade and staying off threatened famine. Of necessity the little back yard garden, which has been ignored by a

majority of the busy world, has been placed upon a pedestal where it promises to stay.

When the call to arms came this spring the army of home gardeners gained several million recruits, due to one of the most remarkable drives for increased food production in the history of the world. Innumerable old rusty hoes and rakes were brought out with the first days of warm weather, and as a result America will be approximately \$100,000,000 richer this

fall, according to estimates made by experts in the Department of Agriculture.

Hundreds of thousands of acres of idle ground located in the cities and towns of the country have served a useful purpose this summer which will be felt the world around. At no time in history has it ever been recorded that such recognition has been given the back yard garden and the humble commuter and his small town cousin will have found themselves



Many fine lawns of country estates were pressed into service this year and turned into productive areas. These two "before and after" views of the lawn of Mr. G. C. Eastman, Rochester, N. Y. are but typical of what was the almost universal practice. Grass succumbed to potatoes

valuable factors in winning America's greatest war. Incidentally, as he lays down his hoe at the close of the season, the back yard gardener is finding out why it is that America is the most wasteful nation on the face of the earth. This discovery is going to have its effect in giving stability to the "back-to-the-garden" movement brought on by the necessities of the times, and for this America may be truly thankful, even if the war does nothing else in a constructive way.

This conversion of the American people into first rate gardeners may be said to be one of the few blessings the world war will bring to America. Experts estimate that if the war does nothing else for the average American family but to show it how to become self supporting during the spring and summer months through its own back yard it will have paid off \$7,000,000,000 of the war credit within the next fifty years. Putting it differently, America has been losing more than \$100,000,000 annually because of its failure to interest its citizens in intensive gardening like that which has been practised in Europe for generations.

The present boom in gardening promises to make history as well as to cut the cost of living for the average family. Surveys made several years ago in a number of large Western cities opened the eyes of many persons to the importance of the home garden movement as never before. In one city, Kansas City, Missouri, it was discovered that more than 20,000 acres of vacant lots were lying idle each summer when they might be converted into profitable gardens through the expenditure of a little time and money. Added to this were about 10,000 acres of back yards capable of supporting home gardens but which were allowed to lie unused.

It was demonstrated conclusively that this waste land was sufficient to feed the population of the city during the summer months, providing its citizens cared to go to the trouble of making use of the vacant lots and idle back yards. One can well imagine the results that would be brought about in the half hearted fight against the high cost of living if the city could be aroused to the need of cultivating and making use of these ideal garden plots. For one thing, it would release an equal number of acres of land used to grow garden produce for the city in the outlying country districts and in other sections of the country. Being self-supporting, Kansas City would not require long trains of freight cars to deliver its vegetables and fresh fruits during the summer months. Therefore, these idle freight cars and railroad equipment could be used in hauling other products suffering because of the congestion of traffic.

What was true of Kansas City a few years ago has been true of almost every city in the country, with very few exceptions. This accounts for the tremendous drive for increased garden acreages made by hundreds of American municipalities. By this drive many thousands of badly needed freight cars will be released for important duties other than the feeding of the population of the large cities. These freight cars can be used advantageously in transporting war munitions and supplies, supporting the boys in khaki. It is in this manner that the garden movement promises to make itself felt around the world, for every week that America can save in equipping and transporting its expeditionary force to Europe will in proportion reduce the length of the war. Not only does gardening promise to hasten the end of the war, but it releases for foreign consumption thousands of tons of foods badly

needed in other countries to avoid famine. For this and other reasons the average back yard gardener may well puff out his cheeks and strut with pride—he is a valuable cog in the world's greatest war machine.

One of the most remarkable garden drives in the entire country has been in Des Moines, where a city of 100,000 was turned topsyturvy in the interest of the movement to make the city self-supporting during the summer months. The city commissioners began their preparations for the garden drive weeks before the weather forecasters began to predict the arrival of spring. For one thing the city employed a high salaried garden expert to take charge of the municipal garden movement. During the spring and summer months, at least, this office shadowed in importance all other municipal offices.

The weeks that followed the employment of the garden supervisor were electric with garden news. Huge quantities of free garden seeds were obtained through congressmen and by purchases made under the authority of the city. These were given out without charge to any applicant who would promise to plant and cultivate a vacant lot or back yard garden, no matter how small. The call for free seeds was so great that the supply was exhausted several times, but the city faithfully made good its word and saw to it that every gardener who wanted them got his free seeds.

The next movement was the making of a survey of the vacant lots and idle plots of ground in the city limits. Thousands of these unused lots, the majority of which had been preempted for dumping grounds or had been allowed to grow up in weeds, were found before the survey was concluded. Arrangements were made to utilize these vacant lots, rent free, for gardening purposes, and the city saw to it that every applicant for garden space was supplied with a vacant lot located as near his home as possible. Before it was time for the first seeds to be into the ground 2,000 of these vacant lots had been claimed and were being cleared of trash and debris by ambitious gardeners. The city commissioners then drafted an ordinance which made it possible to seize and cultivate every vacant lot in the city not put to some useful purpose. The garden supervisor was instructed to seize and put under cultivation all vacant lots and unused property on which weeds were found growing. This added several hundred lots to the city's garden acreage, as idle property owned by so called slackers was drafted for public service. The owner did not share in the profits accruing from the utilization of his property in such cases, for he was allowed no rent.

The protecting hand of municipal authority was extended still further when the commissioners passed an ordinance, or rescued an old statute, making it possible for gardeners harassed by their neighbors' poultry or live stock to make short shift of any offenders caught destroying garden property. Persons who had been in the habit of making short cuts through vacant lots found the law's stern hand pointing out the sidewalk for them, garden property of this sort being inviolate.

Estimates made early in the season indicated that a total of nearly 5,000 new gardens had been added to the cultivated area within the city limits as the result of the agitation for a greater interest in gardening. What is true of Des Moines is true of a hundred other of the larger cities of the country, so that one may readily understand the dollars and cents value of the "back-to-the-garden" movement in America.

In hundreds of localities school children were dismissed from school days and even weeks earlier than the close of the school year in order that the boys and girls might help in planting gardens. Boy scouts and girl scouts were drafted for garden work in hundreds of communities, although it must be said to their credit that drafting in the strict sense of the word was unnecessary. Not only did the schools and municipalities take an active part in launching the garden movement, but thousands of corporations and business houses became aggressive advocates of the garden movement. Almost every railroad of importance had opened its right of way for the cultivation of garden and farm crops by early spring, releasing many thousands of acres of idle land for this useful purpose. Almost all these railroads encouraged their employees to plant gardens on this or other idle railroad property, with the result that thousands of families who otherwise would have been without the ground needed for a home garden were supplied with all the ground they could possibly take care of. In many instances free seeds were supplied to needy employees.

What the railroads have done for their employees they have done for the general public in an even larger measure. With few exceptions all the great western railroad systems have opened their right of way property to the cultivation of farm and garden crops. For the most part no charge is made for this ground, although one railroad does charge \$5 for each lease, no matter how large. This road has thousands of acres of alfalfa planted along its right of way. Near every large city hundreds of garden plots may be found on railroad property of this sort.

Great corporations and important business firms of the nation have shown their patriotism by encouraging the garden movement among their employees. One such corporation which has erected scores of model tenements for its workers, not only supplied the ground and the seed, but offered cash prizes for the best gardens in order to encourage an interest in this work among its employees. The result was most beneficial for several hundred little gardens blossomed out in new places during the spring. Thousands of firms have provided free seeds, given their employees half holidays or taken other steps to put the stamp of their approval on garden work.

One of the most active forces in the drive for more gardens has been the organized womanhood of the nation. Women's clubs and organizations in every state and community have taken an active interest in the garden campaign by planting gardens themselves, and encouraging children to plant gardens, and have offered cash prizes amounting to many thousands of dollars for the best gardens. This work has been carried on as a part of the thrift campaign in which the services of the nation's women have been urgently required.

One of the best examples of what has been done to enlist the boys and girls in garden work is found in Lincoln, Nebraska, the model school garden town of the country. Approximately 5,000 school children were engaged in cultivating home and school gardens under the supervision of the school authorities, coöperating with the federal authorities in developing the school garden plan to its greatest possible perfection.

For several years the children have cultivated school gardens as well as home gardens. Whole schools are engaged in the garden campaign, and each room has its own plot of ground to cultivate and maintain.

This work is, of course, done during the vacation season, but it is very seldom that volunteers must be called in to work a neglected garden. Prizes are offered each season for the best gardens, and in some schools the children are paid for their work in cash or receive a certain share of the vegetables they grow. The surplus crops are sold through the agency of the children's market established on a prominent downtown corner, where the children gather each Saturday morning to sell the produce raised in the school and home gardens. Canning demonstrations are held each Saturday afternoon and the left over vegetables are thus saved for future use.

The interest in the home gardens is equally keen, owing to the inducements offered for making vacation money. Vegetables not required for the family use are sold on the market, and many of the children make from \$50 to \$200 for their season's garden work. The



Root crops may be packed in sphagnum moss and brought indoors to keep

profits returned by some of the school gardens are equally high, often reaching \$2,000. Cash prizes are awarded for home garden work in each school district in the city.

PRESENT SOWING FOR EXTRA EARLY CROPS

BECAUSE, hitherto, we have not taken the garden as seriously as its economic importance deserves we have, as a people, overlooked many fall planting possibilities for food crops. The season of next spring's fresh vegetables may be hastened by sowing seeds of hardy vegetables this fall!

While fall sowing of vegetable seeds may be unusual in northern sections, yet, it is thoroughly practical, *as nature herself proves to us each spring*. Here and there, chance seedlings will appear in the garden, long before the

warm spell (Indian summer) causes some of the seeds to sprout and seedlings will appear. But little is lost if subsequent frosts destroy them.

Spinach will often make a good growth, sown even very late in the fall. But since it is an exceptionally hardy vegetable it is easily carried through the winter under the slight protection of a four-inch cover of strawy manure or hay or dry leaves.

Rather deep covering is advisable with all fall sown seeds because the alternate freezing and thawing of the soil causes the seeds to work toward the surface anyway.

Since all the vegetables sown this fall will mature in early spring, it is essential, of course, to *sow extra early varieties*, examples of which are given herewith. These are selected as illustrative types, and other equally early varieties may be substituted.

Carrots, Early Scarlet Horn, Oxheart, and Chantenay, all serve the purpose well. They mature in the order here mentioned and will beat the spring sown product by a good two weeks. Sow the seeds thinly, in rows, about 18 inches apart. Cover about one half inch deep in light soil, one fourth inch in heavy soil.

Lettuce, Black Seeded Simpson, May King and Prizehead are unsurpassed for fall sowing. All three will stand disagreeable spring weather. May King, fall sown, will form small, but tightly folded heads early in June, when spring-sown plants are just developing the larger leaves. Lettuce seeds may be sown in a manner similar to carrots.

Mustard, Fordhook Fancy and Elephant Ear thrive both perfectly during the very early spring and may be enjoyed over a longer period (in combination with spinach) because the cool weather retards their going to seed.

Peas, of the *smooth seeded sorts only*, are Pedigree Extra Early, Prolific Early Market, and Alaska. The last named sort, while of poor quality, is the most easily procurable. What Mr. Geo. W. Kerr says in last month's GARDEN MAGAZINE about fall sowing of Sweet Peas is equally adapted to culinary peas. Sow them in single rows, 18 inches apart, or in double rows 2 feet apart.

Radishes are surpassed only by spinach in their adaptability for fall sowing. Proof of this: more chance seedlings of radish turn up in the average garden every spring than of any

The Lincoln plan was declared the model of its kind a few years ago by the federal government and Lincoln was made the headquarters for the western end of the school and home garden movement. A new department of garden activity, known as the commercial garden work, has been added, and hundreds of boys and girls have enlisted in this work each year. This year the number was greatly increased. Children engaged in this department of gardening activity are interested in the commercial side of gardening exclusively. They are shown how to engage in the garden business at a profit, and the earnings of some of the boys and girls who engage in this work in a serious way often amount to more than \$100 for a few weeks' work. Widespread adoption of the Lincoln plan might be worth considering as a means of creating a permanent interest in gardening work in all large cities of the country.

other vegetable. Scarlet Turnip White Tip, Rosy Gem, and Scarlet Globe are sorts that will be of edible size when roots from spring sown seeds have not outgrown the seedling stage. Sow like carrots or lettuce, or broadcast like spinach.

Spinach, Prickly Seeded Winter is the best for sections where winters are very severe. Its arrow-shaped foliage does not give frost a very large surface to work on. Long Season (or Triumph) is a very much fleshier sort that requires longer to reach good size. Sow either in rows, like carrots, or scatter the seeds broadly in beds, raking seeds carefully into the soil.

Turnips, either the Early White or Early Purple Top Milan perfect handsome, flat roots, very early in the spring. Sow thinly, in rows, 12 to 18 inches apart, cover one fourth inch deep.

Vegetables from Bulbs or Roots

Onions. There is also opportunity to set out Perennial Winter or Egyptian Tree Onions, also Multipliers and Potato Onion sets. *All must be planted in the fall*. If kept out of the ground over winter, they shrivel badly and are apt to rot after planting. These onions



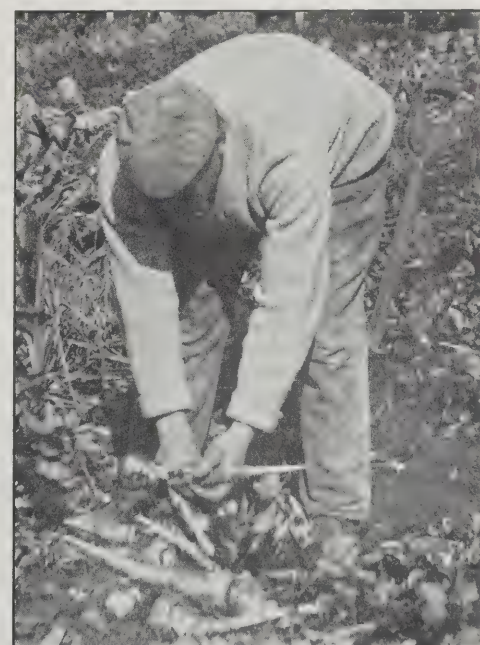
Help the general food conservation plans by storing even a few beets and carrots in boxes of sand

gardener can sow seeds—the result of some seeds blown about the preceding fall and properly stored by nature.

The vegetables adapted to fall sowing are carrot, lettuce, mustard, smooth-seeded peas, radish, spinach, and turnip. The one important point to watch is not to sow the seeds *until cold weather has come to stay*.

However, October is the month in which to prepare the ground. It should be well fertilized (manure, humus, or artificial fertilizer), deeply dug, thoroughly raked and put in the identical condition as though spring garden making time were here. Where humus or commercial fertilizer is used, it should be raked into the surface rather than to be spaded deeply into the ground.

Then wait for freezing weather and *just before the ground freezes hard*, sow seeds as usual, cover as usual, and let nature take its course. It happens sometimes that a belated



Before the root vegetables are put into the storage pit or box cut off the leafy tops, but not the root tips

will furnish both green "scallions" as well as large onions, long before either may be grown from seeds or common sets.

Asparagus, *rhubarb*, and *horse radish* may still be planted and a year's time be gained in having them large enough for use. Remember that asparagus should not be cut for at least one year after two-year-old roots are planted, and for two years if one-year-old roots are used. The same may be suggested for rhubarb. Horse radish planted now will be ready for digging next fall.

Enjoy these Delicacies at Christmas

TOWARD the end of the month (after the frost has killed the tops) go into your garden and dig up one of the largest clumps of rhubarb. Bring it into the cellar, place in bottom of a barrel and move within 10 feet of furnace. Within a few weeks you will be able to cut long, pink sprouts that will make the most delicious sauce. Of course, doing this means the complete sacrifice of the clump which will have all the life "forced" out of it before spring.

Witloof chicory roots should be dug this month, tops cut back to within an inch of crown of plant and set out again in boxes in the

cellar. The boxes in which to grow this delicious vegetable must be deep enough to hold the roots in an upright position (8 to 10 inches) besides allowing a covering of six or eight additional inches of sand or light soil, through which the sprout should push, to be of choicest quality.

Dig up a couple of roots of parsley, trim slightly, cut back top to within an inch of crown, saving the delicate centre sprouts, however. Plant two or three of these roots in a six inch pot and keep in a sunny window in the living room. It will supply garnishing.

Taking Care of the Root Crops

HARDINESS (or lack of it) is the determining factor in handling the root crops this month. Beets, carrots, celeriac, kohlrabi, winter radishes, turnips and rutabagas must be harvested before heavy frosts become the rule, as should also onions and leeks, though these two really do not belong among the root crops, proper.

On the other hand, parsnips and salsify may remain in the open ground all winter, protected just sufficiently to make easy access to the rows possible whenever a supply of roots is wanted.

Beets, carrots, etc., may either be stored in pits in the garden, or in boxes with dry sand or soil in a frost proof cellar. In any case, see that the roots are in first-class condition, free from blemishes, bruises or defects caused by chewing insects—roots of that kind are apt to rot and will infect the others.

Root crops stored outdoors must have well-drained pits, so that any seepage of water during the winter does not spoil the bottom layers. Several inches of coal ashes or cinders spread all over bottom of pit, will serve the purpose well. Spread the sound roots over this in layers and cover with from 2 to 4 inches of soil at first. As the weather gets colder, add more soil and, eventually, some straw or mats, kept in place by boards.

Cellar-stored roots may be packed in barrels or boxes, like potatoes, for instance. When small individual boxes are resorted to for the different kinds of roots, put an inch layer of dry soil or sand in bottom of each; then place roots on top of that, filling space between with more soil. Then follow with alternating layers of roots and soil until box is nearly full, when it should be topped with soil. All root-crops will keep well if handled in this fashion and if kept away from heat and light.

★ WHEN a compost pile is not desired much of the GARDEN DÉBRIS may be used for mulching the perennial crops such as asparagus, strawberries, blackberries, rhubarb, and fruit trees provided that the material is not infested with insect or fungous enemies. In that case better place it on a pile of dry rubbish—pea sticks, for instance—and burn it without delay. Weeds that are so nearly mature that their seeds would prove a menace to future crops may be burned—but there should be no such weeds, only younger ones.

★ BE SURE to save all ASHES FROM BONFIRES because they are rich in potash which in these days is almost beyond price so far as gardening is concerned. They may be scattered on the garden soon as made without danger of loss because potash is "fixed" in the soil. Hence potash in any form may be applied in the fall, so may phosphoric acid. Not so nitrogen, especially in the form of nitrate of soda and sulphate of ammonia, because being highly soluble it will be washed out of reach of the plant roots unless the ground is well hidden by a cover crop at the time. Use such soluble fertilizers in the spring as a rule and their effects will be more noticeable and satisfactory.

★ TO PREVENT NEWLY SET AND SMALL FRUIT AND ORNAMENTAL TREES from being whipped about and loosened by the wind tramp the soil firmly about their bases, piling it up several inches and tramping again. Then drive a stout stake on the side opposite the prevailing wind and tie the tree to it, first passing the tying material, preferably a broad band of burlap, around the tree at least once so tree and stake won't rub at the point tied. The advantage of having the stake on the leeward side is that the sawing of the bandage will be prevented and the stake will support the tree at more than one point. Stakes should be driven in the ground at least two feet and extend above four to six.

★ It's an easy matter to get new plants of BLACKCAP RASPBERRIES. Just let the stems

ORDERS OF THE DAY

grow as long as they wish, but to reduce this length somewhat bend them over without



Save the last green tomatoes by picking after the frost kills the vines. Wrap in paper and put in cellar to ripen

damaging them and let the tips touch the ground. When they do touch, fasten them so the wind will not whip them about. In a couple of weeks these tips may have formed roots and the buds near the ends may have begun to develop shoots which in due time and with similar pegging will take root. Leave them alone until next spring unless you put a little mulch on them for the winter. But don't attempt to transplant them in the fall; they don't do as well as when spring planted—too many die. When severing them avoid cutting off too much of the parent stem.

★ THOSE big, old stems in the CURRANT AND GOOSEBERRY bushes had better be cut out. They have borne now for four years and the fruit is becoming inferior. They choke the younger proportionately more productive stems. Moreover, they are a menace to the balance of the plant because being on the wane they attract insects and diseases. As soon as the fruit has been gathered they may be cut out piecemeal if necessary to avoid damage to the balance of the bush. As to the spindly little stems that are beginning to form a thicket, better wait till spring to cut them out; their foliage will help strengthen the balance of the plant.

★ ROSE CHAFERS or beetles are pretty nearly the recognized "limit" of bug pests. Until a year or two ago they were believed to thrive upon kerosene and arsenates and to have such resilience that a two hundred pound man as an upper millstone and a concrete pavement as the nether were necessary to put them out of effective business. These are the inch-long bronzy olive awkward leggy beetles so common on grapes, roses, cherries, apples, raspberries, etc., *ad libitum*. Much can be done to reduce the number of beetles, which prefer sandy soil in which to lay their eggs, by destroying grasses on which the larvae feed from mid-summer till fall and again during the latter part of May—three times a week apart. From November till midspring the creatures are too far below the surface to be reached by tillage tools.



At least some of the space in the greenhouse may be utilized for vegetables. Side bench planted with lettuce and cauliflower

Food From the Greenhouse This Winter W. N. CRAIG

Massachusetts

CONSTANT SUPPLY OF FRESH VEGETABLES TILL SPRING COMES ROUND AGAIN—WHAT CAN EVEN BE DONE IN A COOL CONSERVATORY

NOT ONLY must we of America plant bigger acreages but we must learn to crop them more intensively. To assist in food production (and I am referring now more particularly to vegetables) greater use must be made of greenhouses; we are aware that commercially the growing of lettuces, cucumbers, tomatoes, beets, radishes and one or two other vegetables is an important industry; we also know that on the majority of the larger private estates a greater area will probably be devoted to them the coming season, but are there not many thousands of

amateurs, who either have or could afford to have a greenhouse of modest dimensions which could be devoted to winter or spring vegetables, and which could at the same time be utilized to start vegetable and flower plants for the garden?

When traveling through Great Britain, Americans are impressed by the numerous small greenhouses owned by suburbanite commuters, to say nothing of those to be found about the allotment gardens and owned by working men. *After three years of war few of these greenhouses are closed and in fact, the government looks with disfavor on any thought of reducing the greenhouse interest, realizing that the structures can be utilized to greatly augment food supplies.* Those in our own country who operate greenhouses should continue to do so, and so increase the output of useful food crops and not from false ideas of "economy" or "patriotic" reasons tell us that they purpose to "shut down for the duration of the war!"

War time is the time to produce all possible vegetables from under glass and not a few people are now building greenhouses adaptable to their culture, and which can later on be utilized for flowers. In time of war we should prepare for peace, and a greenhouse built now will prove a good investment. The owner of a greenhouse has manifold advantages over the man who has to start plants in the home or even in a cold frame. Plants can be grown earlier and of a better quality, ensuring earlier returns.

The type of house must depend on the means of the owner. An even span structure is usually the most economical and practical. Greenhouse builders are always ready to build houses which will not prove a blot on the landscape, which can be easily and economically

heated and cared for, and which will prove a source of pleasure to the owner.

CROPS THAT COMBINE

But what crops can the ordinary person grow in a greenhouse? They are many, but we will look only to the more important. A few (such as string beans, tomatoes, and cucumbers) require a minimum temperature of 58 degrees to 60 degrees in winter and unless a special warm division is reserved in the house it is much better to grow spring or early-summer crops of these. Vegetables needing



Tomatoes demand a higher temperature than the ordinary vegetables and hand pollination



Use the space under the bench for forcing seakale rhubarb, asparagus, etc.

cooler treatment are lettuce, endive, cauliflower, beet, carrot, pea, spinach, water-cress, mustard, cress, radish, parsley, mint, and chives. These will do well in a night temperature of 45-50 degrees.

USING UP ODD SPACE

Additional crops which can be grown below the benches include mushrooms, chicory, asparagus, and rhubarb. The mushrooms will do very well in a cool house, provided the beds are protected from drip and darkened. The asparagus and rhubarb roots succeed well on the floor at the warmest end of the house, the rhubarb and chicory should be darkened for best results. Asparagus roots can be dug from the garden for forcing or bought from a specialist in vegetable roots for forcing. Several batches can be started during the winter, the earliest can go in about November 20th. Simply cover the roots with soil and keep well watered. Asparagus can be cut in two to three weeks from planting and can be cut from profitably for four or five weeks. Then start another lot of roots.

Soil for the Benches

USE a mixture of garden loam (pasture loam if you have it) and well rotted manure, two parts of the former to one part of the latter. Mix thoroughly and leave the rougher portions at the bottom of the benches. The loam must be well enriched, as you will want to plant two, or possibly three, crops in it during the year. Cow manure is specially good for light soil, horse manure for heavier loam.

Lettuces do best in light soil and the heading varieties like May King and Hittinger's Belmont must have it; the leafy kinds succeed well in heavy soil. The crop requires from 10 to 18 weeks to mature from seed according to the season. The young plants should be transplanted into flats before being placed in the benches, 8 to 10 inches apart each way. Special care is needed in watering. The large market growers who have solid beds soak well at planting time and this usually carries the crop to maturity if the soil is stirred from time to time. A lettuce crop planted before September 15th will be headed up by Thanksgiving. If a further batch of young plants is then ready, they will come in about the end of February; before planting second crops the soil must be well forked over and some additional rotted manure or pulverized sheep manure added. Too much water will cause both rot and sun scald on greenhouse lettuces.

Radishes mature in from 24 to 40 days according to the season. Scarlet Globe and Forcing Deep Scarlet Turnip are desirable varieties.

Beets and *Carrots* are better not started until the end of January, at which time a sowing of French Scarlet Horn Carrot can be made. Sow the carrots where they are to mature, they do not transplant as well as beets. Crosby's Egyptian Turnip Beet is unexcelled for indoor culture. Seed can be sown and seedlings pricked out in the bench 3 to 4 inches apart. Both roots and foliage make good food.

Peas. Do you want a late crop of peas? Then sow a row of Buttercup, Little Marvel, or Nott's Excelsior now. Outdoors they will mildew when sown late, indoors they will not. Then again with a greenhouse you can make a sowing in January or even February and have a crop long before the outdoor ones. Give them good soil, supports, a little water and feed

well and you will be agreeably surprised at the picking you will get from a small space.

String Beans succeed only in a warm house through the cold winter months, but a sowing made before September 15th will give a picking in about 50 days. Wonder of France, Abundance, and Triumph-of-the-Frames are splendid indoor varieties. Sowings in a warm division can be made right through the winter and in 8-inch pots splendid crops may be had, but early in April they can be sown in the cool house and such a sowing will long precede those made in the open, and greenhouse beans, as indeed other vegetables have a delicate and delicious flavor.

Greenhouse *cauliflowers* are vastly superior to such as are grown outdoors where they are often subjected to severe droughts. Make a sowing of Kronks Perfection Forcing Erfurt in November. These will give nice heads toward the end of March. Sown at Christmas heads will be ready from the middle of April onward. Cauliflowers need a rich soil and an abundant water supply; as the heads appear break a couple of leaves over them to keep them white. Allow plants 12 x 15 inches space.

A few roots of *parsley*, *mint*, and *chives* along the edging of the bench will prove useful.

Spinach. A sowing of Victoria at the cool end of the house will give a picking of leaves for a long time. After April 1st a sowing of New Zealand Spinach will come along rapidly and if you can give it 55 degrees at night you can sow about the end of September and have abundant picking all winter long.

What Not to Do

THE average small grower would be well advised not to endeavor to fruit *tomatoes* and *cucumbers* in winter, but by sowing at Christmas a fine spring crop may be had.

Tomatoes need a drier atmosphere than cucumbers and it would be better not to grow the two together. Allow tomatoes 18 inches apart in the row, train to a single stem, rubbing off all side laterals and shortening back the leaves a little, hand pollination of the flowers until April will ensure a better set. Splendid greenhouse varieties are Stirling Castle, Comet, Lister's Prolific and Carter's Sunrise.

The English frame cucumber of which Improved Telegraph and Rockford are good types will be found very prolific; plants when fruiting need copious water supplies and liberal applications of liquid manure if long handsome fruits are wanted.

Various Salads

SOWINGS of *white mustard* and *curled cress* may be made at frequent intervals where these are liked in salads. Sow the seeds broadcast and very thickly and do not cover at all. Water freely and cut before the plants make rough leaves; then stir up the ground and sow again.

Water cress can be grown in the cool end of the house, it does not need to be grown in water, but will thrive so long as it has an abundant supply of moisture at the roots. Do not forget that valuable crops may be grown *below as well as above* the benches and the space can be used for water cress.

Where Mushrooms Will Grow

MUSHROOMS will do well in a temperature as low as 45 to 50 degrees at night, provided the beds are made below the benches where there are no heating pipes. It is as use-

less to plant them near heating pipes as in a dry, furnace-heated cellar.

Fresh horse manure with one fourth as much loam added and well mixed and turned over until the rank heat has subsided must be used. Dampen the manure if at all dry, when made up it should be just moist enough to squeeze together without exuding water. Make the beds 9 inches thick, pound or tramp very hard. When the heat subsides to 90 degrees spawn a foot apart, each way, using pieces of spawn the size of an English walnut, do not press the manure heavily over these pieces of spawn for 8 to 10 days. Then firm the whole bed well, cover with two inches of loam, firm again and leave alone until mushrooms appear which may be as early as 4 weeks but will average 6 to 7 weeks. But don't get downhearted even then if nothing appears as occasionally mushrooms will come abundantly after 12 to 15 weeks. They will crop profitably for 10 to 12 weeks and after that the manure can be used as a mulch on the benches or for incorporating with the soil.

Summer Use of the House

A GREENHOUSE devoted to vegetables need never be empty, even through the summer, as crops of *cucumbers*, *tomatoes* and *muskmelons* will succeed finely in them until it is time to clear them out for the next season's planting of winter crops.

Other crops than those named can be grown under glass and the house can be used efficiently to start *sweet corn*, *lima beans*, *egg plants*, *peppers*, *okra*, *tomatoes*, *melons*, *onions*, *celery*, *cabbage*, *cauliflower*, *lettuce*, which will yield much sooner than if started in the garden.

General Attention to Pests

FUMIGATION once a week with nicotine paper or one of the nicotine extracts evaporated will keep aphides and other pests in check. Spraying with nicotine is not to be recommended for vegetable crops indoors. A soap spray will help control white fly. For red spider, which comes with a too arid atmosphere, force of water from the hose or garden pump is the best remedy. Carefully pick off any leaf-eating caterpillars and lay a poisoned mash for cutworms. For mice try a little white arsenic mixed with burnt meal and slightly moistened.

Don't get discouraged because a few pests appear. There would be less charm in growing crops if there were no foes to fight nor diseases to combat. These may sometimes give us a bad quarter of an hour, but if it were all plain sailing we would lose our alertness and watchful care and crops would be less bountiful than they are to-day.

Color of Pansies and Hot Weather.—I suppose that other people must have observed that yellow Pansies will blossom all summer, while blue and violet ones will stop off as soon as the steady warm weather sets in. I had envied a friend this season and last because in his garden the Pansies are as bright (though not quite as large), at the end of August as they were in the spring, while mine died down early in July. Then it came to me that mine were mostly dark colors, while the others were all yellow. I also remembered that it was the same last summer, though both plots were changed, except that the colors had not been. What is the philosophy of this? And how can one handle the Pansy so that all the colors will thrive in hot weather? I recall more than one plot of yellow ones that are now in full bloom, but none of the darker colors.—John W. Chamberlin, Buffalo, N. Y.

A GREAT OPPORTUNITY

From present indications (September 17th) it appears that the intending planter of *Holland Bulbs*, Hyacinths, Tulips, Crocus, etc., will be grievously disappointed this Fall.

None of these bulbs, which usually arrive here in late August has yet appeared, and while it is claimed that one bulb steamer sailed before the embargo was placed, there is no further definite news of it, and one report has this steamer recalled.

At best, this country will receive but a portion of its usual allotment if any, and planted late as they must necessarily be, the planter's success will be in diminishing measure.

Your beds being ready, why not plant this Fall at least a few modern Peonies, and by planting PETERSON'S PERFECT PEONIES (acknowledged the world's standard) from now until the ground freezes, you will be assured of having a splendid display of superb flowers early next summer.

And if you place these in your permanent bulb beds, they may be safely transplanted next Fall if desired. And, too, *unlike Holland Bulbs, they will not "run out," but will continue to increase year after year.*

See my advertisement on following page

George H. Peterson

Rose & Peony Specialist

Fair Lawn

New Jersey

MAKE EVERY FOOT OF GROUND HELP TO FEED THE NATION

If the world is to be kept from starving every foot of ground must return its full value. If you have only a few square feet of ground plant a fruit tree; if you can set an acre or more, do so.

A vegetable garden is good, but it must be made new every season. A fruit garden is *best*, for it will produce year after year.

A Fruit Garden Started This Fall Will Help The Future Food Supply

Every fruit tree you plant is a Liberty Bond for you and your country. It will help to keep all of us from suffering the pangs of hunger.

Hoopes, Bro. & Thomas Company
45 Maple Avenue
West Chester - - Penna.

Our salesman who may be in your vicinity, will help you in your plans. Ask him, or write to us

Hoopes' Specialties for the Home Fruit Garden

presents the select fruits for American gardens and orchards. Send to-day for a copy; plan your fruit garden now.



Really Truly Specialists

There are lots of POOR Peonies; why not have the benefit of really expert advice? Our fame is nationwide. 'Most everybody everywhere knows of the ABSOLUTE SUPREMACY of our Peonies. Do you? One of the REASONS is because

WE GROW PEONIES —NOTHING ELSE

Suspensions of the other reasons will be awakened by our catalogue. Instant confirmation of them if you could visit our grounds and see the plants growing—the stock we send to you. Ask those who have been here

"OUR REPUTATION HAS BEEN BUILT ON
THE QUALITY OF OUR STOCK"

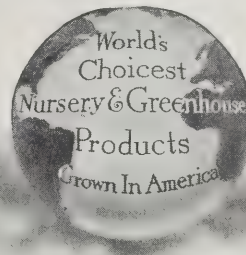
DISTINCTIVE CATALOGUE TO YOU

MOHICAN PEONY GARDENS

BOX 300, SINKING SPRING, PENN'A.

Bobbink & Atkins

500 ACRES
OF NURSERY



500,000 FEET
UNDER GLASS

Plant in the Autumn:

This is the most pertinent advice a nurseryman can give his customers. It should be printed in letters 10 feet high. Nature prepares herself well in advance. *She plants in the Autumn* and so is ready for the first warm rains of Spring. You can't improve on Nature. *Plant in the Autumn* and you will save time and money and secure better results. Weather, soil, labor conditions and prices are *right*—NOW. Take advantage of natural conditions and always buy where variety and stock are abundant. Thus you will secure selected quality, and your plantings will always please and satisfy.

Visit our Nurseries—only 8 miles from New York.
Catalogue of Autumn plantings on request.

Rutherford, New Jersey

Just a Talk about a Hobby of Mine*

THIS will be my last opportunity to talk to you this year on a subject that has been dear to me for twenty-three years, and in which I am to-day more deeply interested than ever—the *Peony*.

Each Spring so many people express their regrets to me because they allowed the previous Fall to go by without making a peony planting. I feel, therefore, that I cannot let this month go by without a final reminder while there is yet plenty of time to plant, since I consider early October the very best time of all. As a matter of fact, I do none of my own planting until after mid-October, and wherever exhibited, my flowers usually take most of the first prizes.

My appeal to you on behalf of the Peony is not merely a business one. We already have the largest and most select peony business in this country, if not in the world, and with a barrel of flour in the larder, coal in the cellar and a Berkshire hog (thanks to a fellow peony enthusiast) fattening for Christmas, why should I care?

If you knew the Peony as I know it, you would love it as I love it. The brush of a Corot, master of colors as he was, would falter before the modern Peony's wondrous range and delicacy of shades. De Longpré, the greatest flower painter of our time, threw down his brush in despair as he failed to catch the elusive tints—the wondrous sheen of the Peony.

And who can drink in the delicious perfume of to-day's varieties without wondering what a Roger & Gallét—a Colgate, would give to match what Nature gives us so freely in the Peony. And speaking of Nature, did you ever stop to think how you and Nature working hand in hand can produce *living* pictures of beauty, such as no Rubens, no Corot, no Angelo ever achieved?

A very dear old lady, who herself gave most freely of her time and wealth to the betterment of humanity, once asked me if I realized how my own efforts were making mankind happier and more blessed.

Time passes—opportunity slips by. Soon it will be a year too late. Send to-day for a free copy of

"The Flower Beautiful"

which tells you the whole story.

George H. Peterson

Rose and Peony Specialist

Box 50

Fair Lawn, New Jersey

*This advertisement appeared one year ago in the Garden Magazine and is repeated by request. It brought forth a good deal of favorable comment, both from the publishers of this magazine and from many advertising men in general.

High Pressure Vegetable Gardening

THIS idea isn't mine. I stole it, but having proved it out I'd like to pass it on. It's about the best way that I know of for getting three crops of staple vegetables a year from the same land:

Not far from Philadelphia, there is a little truck farm that bears all the earmarks of Pennsylvania Dutch ownership. Two years ago there was on that farm a field that was working as only a natural born gardener can make his fields work. This field was producing, continuously and in succession, crops of peas, potatoes, and sweet corn. I had only an instant glimpse of the field as I sped by on the car but I saw enough to convince me that it was a good scheme and I resolved to try it.

Our garden has to work as hard as any in existence for a garden with us is not some ground to play with or on which to carry on nice little experiments but a piece of land that must be made to produce its maximum quantity of foodstuffs. On a portion of it, sixty by seventy-five feet in size, we planted on April 3, Prolific Early Market Peas in rows four feet apart. About the middle of May, when the peas were well along toward bearing, Irish Cobbler potatoes were planted between the rows of peas. By the last week in June the peas were practically done bearing and were removed. In their place, after all the weeds had been cleaned out, White Plume celery plants were set out. At that time the potato plants were blooming and their leafy growth helped to keep the hot sun from striking directly on the young celery plants. Celery was substituted for sweet corn in the original scheme because it yielded a greater profit from a given area and was better suited to our conditions. As the celery grew the potato plants gradually died down until the first week in September when the potatoes were dug and the ground between the celery rows smoothed up, some of it being banked up against the celery. Most of the celery was left in the ground until November 1, when it was lifted and stored.

Under the "Dutch" method our garden produced forty pecks of peas valued at 50 cents a peck, twenty-two bushels of potatoes valued at \$1.75 a bushel, and seventy-five dozen bunches of celery valued at 50 cents a bunch. In producing this \$96.00 worth of vegetables the expenses, of course, ran higher than if only one crop had been grown. It required more seeds and plants and more labor, and we had to use more manure in preparation and more fertilizer for the crops themselves. If it had not been for the 200 pounds of 4-10-1 fertilizer, costing \$5.00, our try at intensive gardening would have been a dismal failure for we know by experience that it is impossible to get constantly good crops from our garden unless we feed the soil sufficiently.

We didn't keep an exact account of what our garden cost us but the largest estimate that we have been able to make is \$45.00, which includes our labor and leaves us \$51.00 to declare dividends with. Our season, six to seven months from freeze to freeze, is just barely long enough to allow us to get three big crops a year from our garden. Modifications in the crops to suit other soils and other climates would of course have to be made if the "Dutch" system was tried in other sections of the country.

Morgantown, W. Virginia, R. E. ALLEN.

HOLLAND BULBS

Darwin, Cottage and Early Tulips, Hyacinths, Narcissi, Crocuses, etc., of exceptionally fine quality

Order early while assortment is complete

PEONIES

Best varieties in strong clumps

PHLOX AND IRIS

in Vigorous, Field-Grown plants
New and choice sorts

It is planting time now. Send to-day for our catalogue

FRANKEN BROTHERS, Deerfield, Ill.

THE most complete stock of hardy plants in America. Illustrated catalog of hardy plants, shrubs, trees and bulbs sent free on request.

ELLIOTT NURSERY COMPANY
326 Fourth Avenue, Pittsburgh, Pa.

SKINNER SYSTEM
OF IRRIGATION

THE SKINNER IRRIGATION CO.
219 Water Street
Troy, Ohio

DOUBLES GARDEN CROPS

Saves them from drought loss. Absolutely *botherless*. Special sprinklers for lawns. Send for booklet.

A COLORADO GARDEN

OF ALPINES AND ROCK PLANTS from the rugged slopes of the Rocky Mountains will condense more joy into a small space than any other style of Fall Gardening. The list includes rare and choice varieties of Anemone, Columbine, Clematis, Delphinium, Gentian, Evening Primrose, Pentstemon, Yucca, Hardy Cacti, and many others not commonly cultivated, all hardy and easily grown.

Besides native plants, we grow and catalogue all the best ornamentals for the Northwest, including trees, shrubs, evergreens and hardy flowers. Either catalogue free.

Rockmont Nursery, Boulder, Colo.

DUTCH BULBS are coming!

The Quality of "Diamond Brand" Bulbs of 1917 crop promises to be *superfine*! We are not so sure about the Quantity, but hope enough will reach us to go around.

Special Offer:—To popularize the giant-flowering DARWIN TULIPS we will mail 12 blooming bulbs each of CLARA BUTT, clear salmon pink; PRIDE OF HAARLEM, deep rose shaded scarlet and GRETCHEN, very light salmon, \$1 36 fine bulbs in all, postpaid for.....



FREE:—Treasures of Bulbland

describes the choicest Hyacinths, Tulips, Daffodils, etc. Delivery in September. Write for your copy TO-DAY.

NETHERLAND BULB CO., 32 Broadway, N. Y.



DARWIN TULIPS.

10 Named Darwin Tulips for 25c

Try this test collection and see what beautiful and stately varieties we have in this new class of Tulips, that grow 3 to 4 feet tall with enormous blossoms of the most wonderful colors.

10 large bulbs, 10 sorts named, mailed for 25 cents

Our Big Fall Catalogue Free

All the best Hyacinths, Tulips, Narcissus, Crocus, Lilies, Iris and other hardy bulbs. Also Perennial Plants, Shrubs, Vines, Small Fruits and beautiful window plants for winter blooming. Over 30 exquisite varieties of Boston Ferns.

JOHN LEWIS CHILDS, Inc., Floral Park, N. Y.

Fraser's Ready-to-Bear FRUIT TREES

Dwarf Apples, 9 year old, \$15 each. Four years old Apples, Pears, Plums, and Cherries, \$1.50 to \$2.00 each. Plant them this fall; gather fruit two years from now. If you want younger trees write for our catalogue.

Samuel Fraser Nursery, Inc.
173 Main Street, Geneseo, New York

FROST CAN'T STOP A BRAVE GARDEN

It goes on green and growing Fall, Winter and Spring, if it is properly equipped with



A Cold-Frame or a Hot-Bed, or both, at a small cost will hold your plants safe and give you profits worth while and pleasure unlimited. Double Glazed Sash are best, but we carry single glazed also.

A Small, Ready-made Sunlight Greenhouse will give you the added advantage of working indoors. These also are double-glazed or single-glazed at your option.



Sunken Path House



Bench House

WRITE FOR CATALOGUE AT ONCE
IMMEDIATE SHIPMENT ALWAYS

SUNLIGHT DOUBLE GLASS SASH CO.
927 East Broadway Louisville, Ky.



A Garden of Glory from Spring to Fall



With a planting of carefully selected Iris and Phlox your garden will be a mass of glowing color from June to October. The Iris with its marvelous tints and markings will be the first perennial to welcome summer with opening flowers. After it has given you a spring-ful of joy the gorgeous Phlox bursts forth to claim your admiration. Many delightful colors are shown by the different varieties, and if the proper sorts are selected, you may have a succession of bloom until October.

As it is important that both Iris and Phlox should be planted in fall, we are making special offers of several choice sorts of each.

New England Iris Collection

Maori King, gold and crimson	Each 20 cts.
Mme. Chereau, white and blue	15 cts.
Amas, rich blue and violet	25 cts.
Her Majesty, dark rose	35 cts.
King of Iris, brown and yellow	35 cts.
Princess Victoria Louise, Sulphur and creamy plum, very distinct	35 cts.

Collection of 18 Plants, 3 of Each Variety, Delivered for **\$4.50**

Cromwell Phlox Collection

Baron von Dedem, intense scarlet	Each 20 cts.
Eiffel Tower, cherry pink	20 cts.
Europa, snow white; crimson eye	20 cts.
Elizabeth Campbell, salmon pink; dark eye	20 cts.
Rynstrom, carmine rose	20 cts.
Miss Lingard, finest pure white. Very early flowering	20 cts.

Collection of 18 Plants, 3 of Each Variety, Delivered for **\$3.50**

Cromwell Gardens Handbook of Perennials, Roses, Etc.

Tells about the choice plants grown at Cromwell Gardens. If you have a garden or greenhouse you need a copy. We will send you one on request.

CROMWELL GARDENS, A. N. Pierson, Inc.

Box 12, Cromwell, Conn.

Landscape Planting Plan—Free



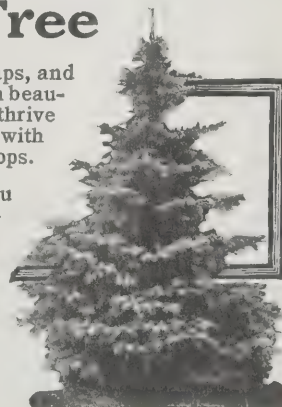
A few evergreens, some Norway Maples, perhaps, and a little well-placed shrubbery will work wonders in beautifying your home. Harrison Quality Trees will thrive in any climate, north or south. They are well-grown with vigorous, compact root systems and carefully shaped tops.

Tell us your needs. Our Service Department will help you make a selection and work out a successful planting plan—all without cost to you. Be sure to send for our 1917 catalogue—free. It describes a complete line of ornamental trees, shrubs, and vines. Also fruit trees budded from bearing orchards—all kinds. Write to-day and be prepared for the spring planting.

"Largest growers of fruit trees in the world"

Harrison's Nurseries
J. G. Harrison & Sons Proprietors

Box 56
Berlin, Maryland





Top-Notchers Perennial Larkspurs

If you like blue flowers, you simply must have some of our wonderful seedling Larkspurs with their regal spikes six feet or more in height in marvelous shades of dark-blue, light-blue and white.

Special Offer For Immediate Planting

To introduce our new Seedling Larkspurs, we will send prepaid to any address:

12 Assorted, One-Year Old \$5
Field-Grown Clumps,

Guaranteed to bloom continuously year after year.

SEND FOR OUR CATALOGUE
"PERENNIALS FOR
FALL PLANTING"

Place Your Orders Now for November
Importation, Dormant Roses.

Charles H. Totty
Madison New Jersey

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in October

(Following dates are meetings unless otherwise specified)

- *Massachusetts Horticultural Society, Boston, Mass. Special Exhibition of Fruits, by announcement.
1. New Bedford, Mass., Horticultural Society.
2. Lake Geneva, Wis., Gardeners' and Foremen's Association.
- 3-5. Garden Club of Pleasantville, N. Y. Woman's National Farm and Garden Association, Chicago, Ill. Annual Meeting.
4. Marshfield, Mass., Garden Club.
5. Pasadena, Cal., Horticultural Society.
- New York Botanical Garden, Bronx Park, N. Y. Lecture: Autumn Coloration.
8. Park Garden Club, Flushing, L. I. Rochester, N. Y., Florist Association.
- New Rochelle, N. Y., Garden Club.
9. New York Florists' Club, New York City, N. Y. Gardeners' and Florists' Club of Boston, Mass. Meeting and Vegetable Exhibition.
10. Short Hills, N. J., Garden Club.
- Lenox, Mass., Horticultural Society.
- Nassau Co. Horticultural Society, Glen Cove, L. I.
12. Connecticut Horticultural Society, Wethersfield.
- Minnesota, Minn., Garden Flower Society.
- Westchester, N. Y., & Fairfield, Conn., Horticultural Society.
13. Dobbs Ferry, N. Y., Horticultural Society.
- New York Botanical Garden, Bronx Park, N. Y. Lecture: The Relation of Forests to Water Supply.
17. Rhode Island Horticultural Society, Providence, R. I.
- Tarrytown, N. Y., Horticultural Society.
18. Marshfield, Mass., Garden Club.
19. Pasadena, Cal., Horticultural Society.
- California Dahlia Society, San Francisco, Calif.
20. New York Botanical Garden, Bronx Park, N. Y. Lecture: Fall Planting and Winter Protection.
22. Park Garden Club, Flushing, L. I.
- 22-24. American Civic Association, St. Louis, Mo., 1917 Convention.
24. Short Hills, N. J., Garden Club.
- 24-25. Lenox, Mass., Horticultural Society. Fall Show.
26. Connecticut Horticultural Society, Wethersfield.
27. Dobbs Ferry, N. Y., Horticultural Society.
- 31-Nov. 4. American Pomological Society, Boston, Mass. Meeting and Special Fruit Exhibition.

Pomologists to Meet at Boston

THE Thirty-fifth biennial meeting of the American Pomological Society will be held in Boston, Mass., October 31—November 4, 1917, in connection with the Massachusetts Horticultural Society and the New England Fruit Show. Very full and extended programmes covering all phases of fruit growing will be rendered and an exceptional exhibition of fruits, fruit products, and allied material will be staged. Unique exhibits and demonstrations with some of our newer fruit introductions such as the Avocada, and fruit-juices as the Loganberry-juice will be in evidence.

On the whole the event promises to be one of unusual interest to American pomology. Boston's well known attitude toward both amateur and professional horticulture and pomology assures a delightful and instructive week to all those attending. The Secretary, E. R. Lake, 2033 Park Road, Washington, D. C., will gladly send full programmes. The President is Prof. W. N. Hutt, Raleigh, N. C.

American Civic Association

ON OCTOBER 22nd to 24th the 1917 Convention will be held in the City of St. Louis, which will be the first time that this Association meets west of the Mississippi, since its formation at the St. Louis World's Fair in 1904. It will give an excellent opportunity for the stimulation of greater interest and activity in civic work, particularly throughout the West and Southwest.

(Continued on page 104)

Why Willadean Service COUNTS MOST!

Most nurserymen are conscientious and sell good plants. Yet, frequently, the plants or trees fail to satisfy because they are not suited to the planter's soil and climate or do not properly fill his needs. When we started in business, nearly 20 years ago, we decided to give *Service First*, then sell plants. Willadean Service will help you avoid failures with plants. Right now it will gladly explain the wisdom of

Fall Planting of Hardy Plants and Evergreens

All plants that start growth very early in the spring *must* be transplanted in the fall or suffer a severe shock, often death. Peonies, Phloxes, Irises and all "old-fashioned" hardy perennials should be transplanted *now*. Evergreens, such as we ship, with a large ball of earth, may be safely transferred to your home ground as long as the ground can be dug. Send now for complete catalogue and

WRITE FOR FREE ADVICE

on what you may safely plant now in your locality and on your particular grounds. Unless we feel sure that we can satisfy you, we shall not encourage you to order. This is the attitude that earns us the loyal appreciation of thousands of satisfied customers every year. Let's get together! We'll make your plant problems our own.

WILLADEAN NURSERIES Sparta, Ky.

Gladioli

EXCLUSIVELY—

Order Now. Restricted imports will create an unprecedented demand for American-grown bulbs—stock will be scarce and prices high in the Spring.

Cedar Acres

B. HAMMOND TRACY, Box 27, Wenham, Mass.



Callahan Cut-to-Fit Greenhouses

set into your place as well as if a high priced architect planned them—and at a cost complete as low as his fee.

They are made in a wonderfully equipped factory, of any size you desire, and shipped to you so worked and marked any carpenter can set them up.

Factory production makes possible the best building at the lowest price. Hence they have every approved feature, and are as durable as they are artistic. Quality construction in every particular.

Let us send you our catalogue telling all about them.

CALLAHAN DUO-GLAZED SASH CO.
1315 Fourth Street Dayton, Ohio

Peonies You Will Like

Big, glorious flowers, a single one of which is a whole bouquet in itself; marvels in size, yet graceful in form; of charming tints and shades, delightfully fragrant and long lasting after cutting, such are

Brand's AMERICAN SEEDLINGS

The sturdiest, ruggeddest peonies that ever grew. They surpass many of the choicest imported sorts in freedom of bloom and worth-while characteristics. Because we have faith in the future of these distinctly American creations, we have gathered about us the largest collection in the East. Exceptional care in growing and labeling them enables us to offer them

Guaranteed True-to-Name

Plan to plant some this month. Our collection of both American and European varieties consists of over 400 of the choicest. All dug, packed and shipped with greatest care to insure you the choicest flowers quickly. Send for free catalogue, describing all we grow in our nursery. Besides peonies, we grow every year about 500 distinct sorts of choice Gladiolus. Become acquainted—write NOW.

BABCOCK PEONY GARDENS, R. F. D. No. 80, Jamestown, N. Y.



Archie Brand—None Better

Our Bulb Specials

include the newest and most beautiful types of Tulips and Narcissus.

Collection A 75c

One each of the following rare Narcissus and Daffodils:

Elvira, King Edward VII, Cassandra, Madam de Graff, Glory, King Alfred, Glory of Noordwijk, Red Star, Firebrand, White Lady.

75c Collection B 75c

One each of these magnificent Breeder Tulips:

Bronze Queen, Cardinal Manning, Chas. Dickens, Chestnut, Feu Ardent, Fairy, Golden Bronze, Godet Parfait, Lucifer, Madras, Mahony, Prince of Orange, Sabrina, Yellow Perfection.

Our Free Catalogue

Is a Textbook on Bulbs. Beautifully illustrated and giving exceptional information. It is a book you will keep for study and reference. Send for it to-day.

WOOD, STUBBS & CO., Louisville, Ky.

INCORPORATED

Roses for Fall Planting

Plant now for indoor bloom this winter and for early outdoor bloom next summer. You'll find a lot of helpful suggestions in our

Autumn Floral Guide

Lists and describes Pot Roses for indoor bloom, Own-root Roses and Hardy Climbers for out-door fall planting. Also hardy Ornamental Flowering Shrubs, Peonies, double herbaceous, Hardy Perennials, Hyacinths, single and double, Tulips, tested on our own grounds, and fall seeds for fall planting indoors and out.

Send a postal for the Guide to-day

CONARD ★ ROSES
& JONES CO., Box 24, WEST GROVE, PA.
Robert Fyle, Pres. A. Wintzer, Vice-Pres.
Rose Specialists—Backed by 50 years' experience.

Horsford's Cold Weather Plants and Lilium Bulbs Ready Now

Planted this fall they will give you beautiful blooms next spring and summer.

HOLLAND BULBS

in Darwin, and other fine Tulips, Hyacinths, Daffodils, etc. Autumn Bulb Catalogue No. Non request.

F. H. HORSFORD
Charlotte Vermont



KRELAGE'S BULBS For Fall Planting

We have arranged to supply our patrons with a limited quantity of choice hyacinths, Narcissi, Darwin Tulips, etc., in popular assortment from stock in New York. A list of these will be sent free on request by

J. A de VEER, 100 William Street, New York
Sole Agent for E. H. Krelage & Son, Haarlem, Holland

Don't pay a nickel each for Peaches and Pears when you can pick them off the trees

Fruit picked ripe from the trees is far superior in taste to that which you buy from the vendor's stand. Such fruit is generally picked green and allowed to ripen in transit. Fruit, deprived of the nutritious sap from the mother stem, sometimes for weeks, can never equal the luscious flavor of that freshly picked.

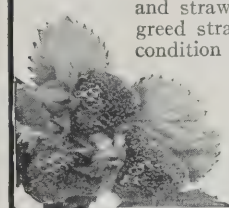
Go into partnership with Nature and let her provide winter luxuries for your table. Grow your own fruit and enjoy jams, preserves and jellies when fruit is scarce. Your home grown, home made preserves are infinitely superior to the higher priced "canned" varieties.

But when you plant, take care to plant sturdy stock of proven merit, that your forethought, expense and effort may not be expended in vain. Hicks fine fruit trees, berry bushes, grape vines and strawberry plants are all of pedigreed strain. They are now in prime condition to transplant.

Hicks fruit trees planted this fall will gain a year's

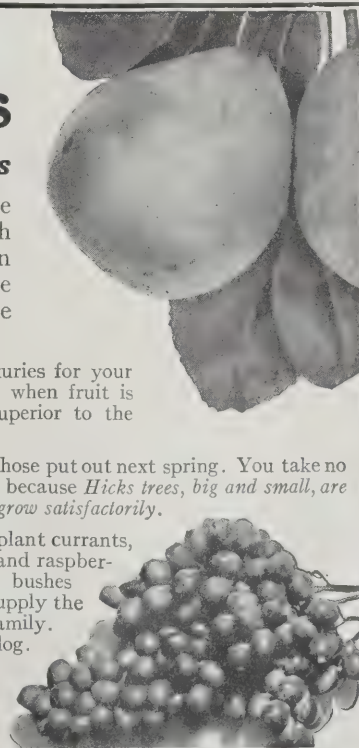
HICKS NURSERIES

Box M, Westbury, L. I. Phone 68



growth over those put out next spring. You take no chance of loss because Hicks trees, big and small, are guaranteed to grow satisfactorily.

Be sure to plant currants, gooseberries, and raspberries. A few bushes of each will supply the needs of a family. Send for catalog.



TULIPS NARCISSI HYACINTHS



FALL is here and it is time to secure your bulbs if your spring garden is to be the delight you would have it.

Let me supply your needs. I have all the finest varieties; the quality is the best and I know the results will please you.

Send to-day for my catalogue "Your Spring Garden."

A.B. Vanderbeek
Bulbs

172 Broadway

Paterson, N. J.



DON'T TAKE CHANCES WITH YOUR TREES

Let us take care of them *now*. We will know what to do and *do it right*. Experts in cavity filling, blocking, bracing, etc. Representatives available everywhere. Send for "Tree Talk"—the tree lover's manual.

THE F. A. BARTLETT COMPANY
588 Main Street Stamford, Conn.

ROSES OF NEW CASTLE
—the most authoritative book on rose planting, cultivation and pruning ever published. Beautifully printed in colors, this valuable guide gives special prices and tells all about our famous Roses, Plants and Bulbs. It's the lifetime experience of America's largest rose growers. You will be astonished at our low prices. Tells how we prepay express charges anywhere in the U. S. and guarantee safe delivery. Write to the Rose Specialists for your copy to-day.

HELLER BROS. CO., Box 1021, New Castle, Ind.

Narcissus Bulbs Ready

Mixture, composed mainly of varieties Poeticus Ornatus, P. Poetorum, P. Pheasant's Eye, single and double yellow Incomparabilis, Stella, Barrii conspicuus, Mrs. Langtry, Dolly Cup, Minnie Hume, with occasional bulbs of other varieties. \$1.00 per 100, \$8.00 per 1000, postage or express paid. Prices on larger quantities furnished on request.

Oronogo Flower Gardens

Carthage, Mo.

Irises, Hardy Plants, Lilies and Japanese Garden Specialties

Send for our new 1917-18 Catalogue
Over 500 fine varieties of Irises

Rainbow Gardens 1980 Montreal Avenue
St. Paul, Minn.

SUNDIALS

Real Bronze Colonial Designs
From \$3.50 Up

Also Bird Baths, Garden Benches, Fountain
Sprays and other garden requisites.

Manufactured by

The M. D. JONES CO.
72 Portland St. Boston, Mass.
Send for illustrated Price-List



Traxler's Collection of Fragrant Peonies

This collection contains all of Mr. Brand's "America's Best," all of the world's best, and nothing but the best. Nothing but fragrant varieties and only the best of these. You cannot ship bulbs from Holland. Why not plant peonies instead?

Send for descriptive folder and price list.

JOHN A. TRAXLER, 225 West 24th St., Minneapolis, Minn.

THE STEPHENSON
LYNN TRADE MARK MASS

Underground Garbage Receiver

installed at your home—means less danger from infantile paralysis germs. Act NOW—for your protection. Eliminate the dirty garbage pail. Before buying send for our catalogue. It will pay you.

12 years on the market

Look for our Trade Marks

Sold direct factory

C. H. STEPHENSON, Manufacturer, 40 Farrar Street, Lynn, Massachusetts



"BUFFALO" PORTABLE POULTRY RUNWAYS

enable you to make any size yard or runway desired. Can be moved to other locations at will. Prices as follows:

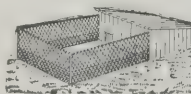
7 ft. long x 5 ft. high	\$3.75 per section	8 ft. long x 2 ft. high	\$2.00 per section
2 ft. 6 in. long x 5 ft. (Gate)	1.60 "	6 ft. long x 2 ft. high	1.60 "

Above prices are for orders consisting of six sections or more and are F.O.B. cars Buffalo, N. Y. Best article on the market for young chicks, ducks, geese, and other small fowl or animals, also for enclosing small gardens in season. Place your order to-day! You will be well satisfied. Send check, money order or New York draft and we will send you the greatest article on the market for poultry or dog kennel purposes. Booklet 67A describing this system will be mailed gratis upon request.

BUFFALO WIRE WORKS CO.

(Formerly Scheeler's Sons)

467 Terrace, BUFFALO, N. Y.

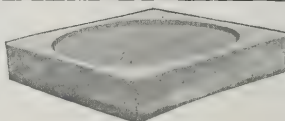


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Largest importers and growers of
ORCHIDS in the United States

Send twenty-five cents for catalogue. This amount will be refunded on your first order.

LAGER & HURRELL
Orchid Growers and Importers SUMMIT, N. J.



A Charming Birdbath of Artificial Stone

fifteen inches square, three inches thick, hollowed out round two and one half inches deep in centre sloping to three-eighths at edge. Inexpensive, Practical, Artistic.

Price \$2.00. Three for \$5.50, f. o. b. Verona.
VERONA BIRD HOUSES. SEND FOR LIST

W. H. BAYLES

Verona, New Jersey

THE BEAUTY

of Hardy Phlox can not be imagined. They must be seen both in color and Show. I have over 300 varieties. Send for list.

W. F. SCHMEISKE

Hospital Station, Box 11

Binghamton, N. Y.



Beautify Furniture

Protect Floor and Floor Coverings from injury by using

Glass Onward Sliding Furniture Shoe

in place of casters.

If your dealer will not supply you write us.

ONWARD MFG. CO.

MENASHA, WIS. DEPT. T

LE PAGE'S
CHINA CEMENT
STANDS HOT AND COLD WATER 10¢



MORE FRUIT from your trees if you keep them free from San Jose Scale, Aphis, White Fly, etc., by spraying with

GOOD'S CAUSTIC POTASH SOAP No. 3

Kills all tree pests without injury to trees. Fertilizes soil and aids healthy growth.

Our valuable book on Tree and Plant Diseases. Write today.

FREE
JAMES GOOD, 2111-15 E. Susquehanna Ave., Phila.

(Concluded from page 102)

Women Horticulturists' Meeting at Chicago

THE Woman's National Farm and Garden Association, organized to promote the practical training of women in outdoor occupations, will hold its annual meeting in Chicago, October 3rd, 4th and 5th at the New Morrison Hotel, Corner of Clark and Madison Streets. The President of this Association, Mrs. Francis King of Alma, Michigan, is well known to our readers, and its membership includes upward of 2,000 women actively engaged in a large way in farming, gardening, poultry and cattle raising. A cordial invitation is extended to every woman to write to the Secretary, Miss Hilda B. Loines, 600 Lexington Avenue, New York City, for further information.

Big Events for St. Louis in 1918

BY A radical change of plans the Society of American Florists has taken a decidedly progressive step in arranging that its annual Convention for 1918 shall run simultaneously with the great biennial National Flower Show at St. Louis, April 6th to 15th. Mr. C. H. Totty is elected President for 1918, and in 1919 the Convention will go to Detroit. The united gatherings at St. Louis next April should be the greatest meeting of horticulturists, florists, and gardeners ever brought together.

Some Bulbs Assured

THE bulb situation this year is very complex and from indications at this writing (September 15th) there is little likelihood of any Dutch bulbs even arriving in this country before the first week in October. Under normal conditions the bulbs are usually here about the latter part of August or the first week in September, and the dealers anticipate an enormous congestion of business in the effort to fill in six weeks orders that ordinarily are spread over twelve weeks. "Just now," writes one large dealer, "in fact I hardly see how the thing can be done." The purchaser must indeed possess himself in patience, and be considerate in the matter of delays, etc., and not blame too much to the dilatoriness of the dealers, who this year at least will possibly be entirely innocent.

About three weeks ago a report appeared in the newspapers to the effect that the Holland government had prohibited the exportation of bulbs. Retail catalogues were ready for distribution and had to be held up pending further advices. Quick action on the part of the trade through the Holland Ambassador and our own State Department at Washington disclosed that this embargo referred only to small bulbs which had been sent last season to Germany for the feeding of cattle, and that there was no embargo on the normal supplies of the class of bulbs handled in this country. The only difficulty was the transportation.

Large quantities of bulbs have undoubtedly been on the docks in Rotterdam since early in August, and we understand that 26,000 cases left on board the S.S. *Waaldyk* September 7th, due to arrive about the time this issue of THE GARDEN MAGAZINE is published.

Now, while the dealer will of course do all in his power to get off all shipments when the goods arrive, the purchaser must be patient, but before all else he must needs also act promptly in placing his order if he does not want to run the risk of "getting left," for "first come first served."

Stewarts

IRON FENCE
STANDARD
of the WORLD



Residence of C. D. MacDougall, Esq., Auburn, N. Y.

**IRON FENCE AND ENTRANCE
GATES OF ALL DESIGNS AND
FOR ALL PURPOSES.**

**WE INVITE CORRESPONDENCE WITH
THOSE WHO ARE INTERESTED.**

The Stewart Iron Works Co., Inc.
"The World's Greatest Iron Fence Builders"
650 Stewart Block Cincinnati, Ohio

WRITE FOR BOOK OF DESIGNS

SUN DIALS

Pedestals, Gazing Globes

Dials to order for any latitude. Guaranteed to record sun time to the minute.

Illustrated detailed information sent upon request
Ask for Folder C-2

E. B. Meyrowitz, Inc., 520 Fifth Avenue
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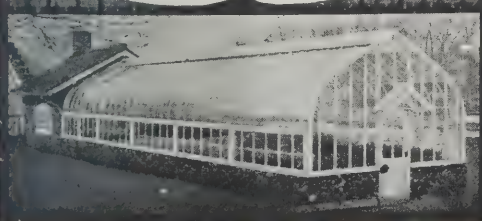
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Vegetables Planted in Autumn

TURNIP-ROOTED chervil is a good vegetable for home use. The edible part is the root, which is used in the same manner as the carrot. The leaves are used the same as parsley for garnishing and in flavoring soups. I sow the seeds in the open ground as early as possible in the autumn. It germinates the following spring and matures in early summer but is improved by remaining in the ground. As a fact, radishes are suited to early spring and late autumn planting. I sow the seeds of Early Scarlet Short Top, French Breakfast, etc., in a hotbed or a cold frame, and they are easily grown during the winter. Spinach is well known as the standard plant for spring and fall greens, although for home use it may be grown also during the summer, especially the New Zealand variety. To have an early supply for home use, some grow it under glass. I don't. I sow the seeds in the open ground in early fall and it produces an abundance of greens during the late autumn and early spring. To be sure with the crop over winter and to hasten its early maturity, I slightly top-dress the beds with manure in the fall. It does well. My winter supply of lettuce comes from the seeds of Boston Market, sown in the autumn in a cold frame, the plants being later transplanted in a hotbed. It takes from 60 to 90 days before it is ready for use. By the time the lettuce is consumed we have ready for use the Green Curled variety of endive, which seeds I sow a month or so earlier than the lettuce seeds. I plant corn salad, which is valued for salad purposes, for greens and seasoning as the plants are hardy and it takes only 60 days to get the crop ready for use. I make two sowings in the autumn, both in a cold frame, one for late autumn use, September 1, and the other in the late fall, to be wintered for early spring use. For a winter supply of garden cress I sow the seeds in boxes, and cress is easily grown in the house. Succession sowing may be made as often as every 30 to 40 days. Parsley is the most popular of all garnishing herbs. The leaves are used also for salads and for flavoring. It takes 90 to 120 days to make the crop ready for use; so, in order to have an early crop of parsley, I sow the seeds in a cold frame in September, and make successional sowings continually. For winter I transplant the strongest plants to cold frames, so as to gather leaves all winter.

For an early supply of cabbage, I sow the seeds of the Jersey Wakefield in the autumn in a cold frame, the plants being later transplanted and wintered under sash. During the winter the plants make a slow, steady growth. With some hardening before transplanting in the open ground early in the spring, a good crop of early cabbage may be expected. In order to have an early spring supply of onions, I plant the potato or multiplier onion sets in the autumn and a succession crop in February. The sets planted in the fall remain in the soil over winter and produce excellent early green onions, and by the time these onions are consumed, the crop planted in February is ready for use. I also plant in the autumn the small bulbs of the top or tree varieties, which produce onions the following season. The Welsh onion seeds stand well the winter of our vicinity and I sow them liberally. The leaves are mild in flavor and are used in seasoning. They are ready for use just by the time the chive beds are heavily picked off and couldn't be relied on for some time to supply the seasoning for home use.

Maryland

SAMUEL H. GAREKOL.

Dainties from the Sunny South

Here's a thoughtful gift for the boy or girl away from home or for any friend whose palate appreciates tasty delicacies. **Kumquat, Guava and Scuppernong Jelly. Orange and Pineapple Preserve and Grape Fruit Marmalade** of such high quality as to be distinctive and unforgettable. Just think how these would taste to you through a lonesome Yuletide or through a period of convalescence and send them along! A satisfying, airtight, unbreakable cupful of the choicest of the warm Southland's sweet-meats in a green wooden box bearing a poinsettia decoration and a beautiful, hand-tinted presentation design and verse—all sent postpaid for \$2.00. A timely suggestion from 1000 in the **Pohlson Year Book of New and Distinctive Gifts** that carry a message of discrimination and thoughtfulness. This book, sent with any purchase comes alone for 6c in stamps. It is a marvel of ingenuity—the key to a shopping season of delight. Send for it.



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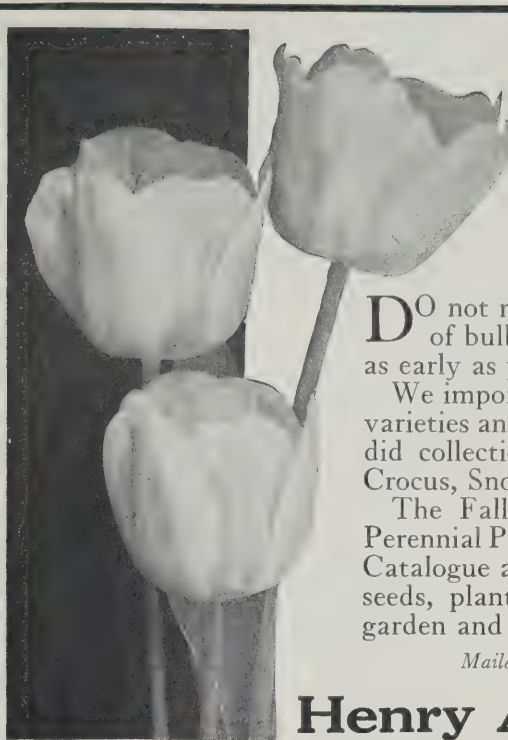
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Dreer's Reliable Spring-Blooming Bulbs

DO not miss the joy of having a bed or border of bulbs next Spring. Plant them this Fall as early as you can and success is certain.

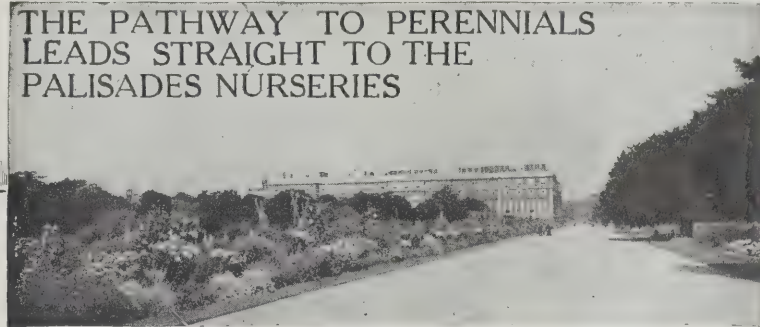
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The Fall is also the time to set out Hardy Perennial Plants, Vines, Shrubs, etc. Our Autumn Catalogue also gives a complete list of seasonable seeds, plants and bulbs for out-doors, window garden and conservatory.

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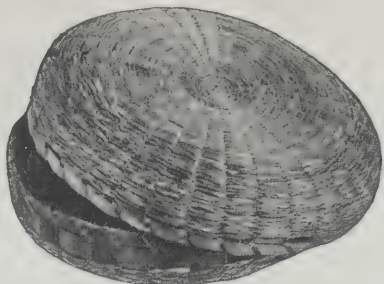
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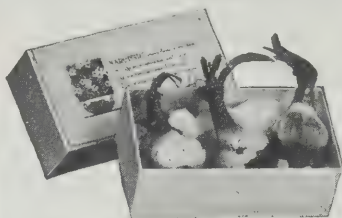
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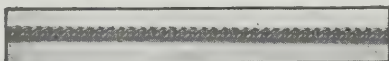
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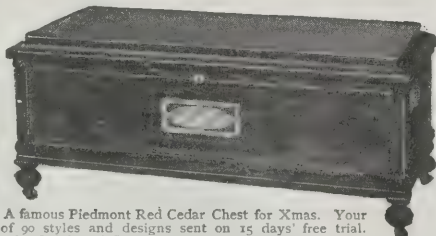
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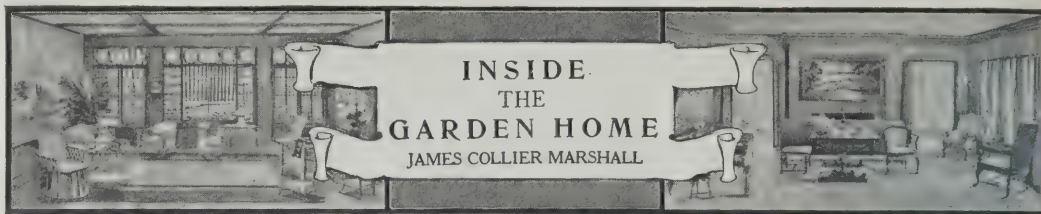
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INSIDE THE GARDEN HOME

JAMES COLLIER MARSHALL

Some Good Things for the Small House

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.

THERE is no place in the house where artistic effects can be achieved so easily as in the dining room. Here all is a matter of taste in selection and careful arrangement. Once the furnishings are decided upon the decorative and useful adjuncts apparently follow of their own accord.

All the articles shown here are well suited for use in the small house where costs must be reckoned, and of those the dishes at the foot of the page are especially worth while. Note its unusual shape, the ribs of which are outlined with dull gold, that adapts it for use either with antique or modern furniture. An open stock set, it is very reasonable, the whole service of 108 pieces costing only \$68.50.



An oval tin tray about 15 inches long is also an interesting and useful adjunct of the small house. A brilliant parrot is wonderfully painted on a soft green ground and framed by the black rim. Price, \$3.

Tables are always good and there can never be too many of them.

"Only once in my experience," said a well known decorator, "have I seen a house that seemed to have too many tables—they were everywhere and of every description. But as they were all in use I feel obliged to admit they were necessary. However, the trouble lay not in their number but in the fact that they had not been properly selected for use with one another. Had this point been carefully attended one's attention would not have been attracted to their presence."

Never was a truer statement made regarding any object of decoration though it doubtless applies more to tables than to other things. Tables are very necessary and several are needed in nearly every room, but they must be suited not only to their surroundings but to each other since here the comparison is keenest.

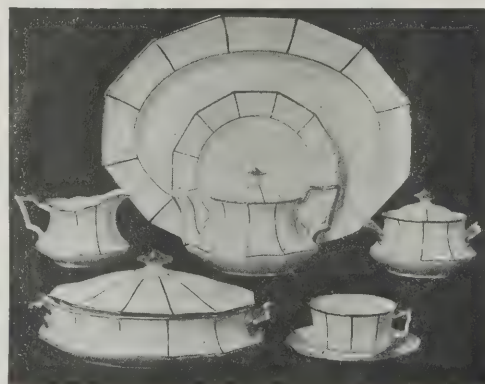
The lyre drop-leaf table shown here is essentially a living room or hall piece, though it might under certain circumstances be used in a man's sitting room where it would be excellent as a smoke table since its dimensions, 2 feet tall and 20 inches wide are well adapted for this use. Its lyre design suits it well to the Sheraton, Heppelwhite and Early American types of furnishing, and at \$35 it is very reasonable.

Entirely different is the dainty tray topped stand seen beside it. This is distinctly Italian in design, its whole top being charmingly painted in ivory, or green, after the florid Florentine manner. Besides, it is distinctly feminine and should be used only in those parts of the house that are strictly the woman's domain—the dining room, beside the tea table and in the boudoir. Beautifully made it sells for \$41.



Another table very satisfactory for living room and hall is of mahogany with four carved spool legs, two of which fold in very closely, permitting the round top to tip up, like an old fashioned tip table in effect though far more staple and strong. It will appeal especially to those who must conserve space and who need some combination arrangement for tea service and cards. Of mahogany it sells at \$17.50.

There is also a low mahogany stand patterned after the Louis XV designs, which is intended for telephone use. This has a capacious undershelf for telephone books and a shallow drawer in one end for a memo pad and pencil. This is quite inexpensive.

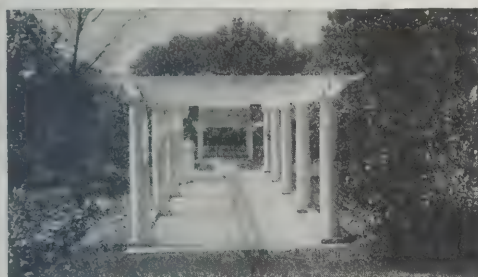


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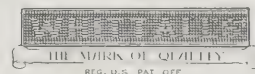
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YOU don't have to buy many good rugs in a lifetime, because really good rugs naturally wear a long time. So, isn't it strange then, how some people can be talked into buying a rug that "looks" something like a Whittall, just because it costs a few dollars less? They forget that the chief quality in a rug is Durability, and the trouble is that

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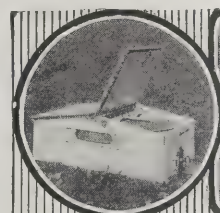
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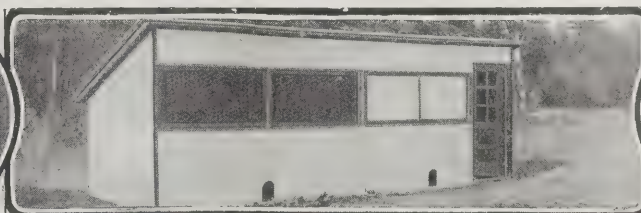
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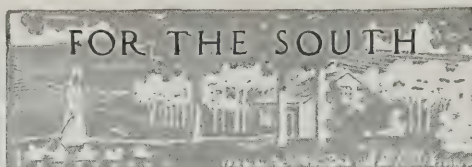
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FOR THE SOUTH



BEGIN now to bank up the celery with earth but only if it is dry, otherwise it will rot. Tie a soft twine around the celery plants, beginning at one end and twisting the twine around each plant down one row then up the next and down the third, using the same ball of soft twine to the very end of the last row. Pack the earth around the plants and as the plants grow pack it around again and so on until it is a high mound, and at the end of November cover all with pinetags or straw, and on top of this place boards to hold it down, and slope the boards like the roof of a house to take off the rain and snow. The celery from the very first should be constantly sprayed with bordeaux to insure against blight, and should also be fed with nitrate of soda or manure water to push it along.

IN THE orchard remove dead limbs, prune away the limbs that crowd each other, so as to let in the sunlight, and keep the young trees headed low to simplify the gathering of fruit. Plant all fruit trees in the Autumn, except the stone fruits. Plant the deciduous trees and shrubs, with the exception of the Tulip Poplar and the Birch. February is the best time for these, as also for evergreens.

Sow grass seed for lawn and orchard.

Hyacinths, Tulips, Narcissus, Crocus, Lilies and other outdoor bulbs should be planted now. Those which were planted in pots for the indoor garden the last of August can now be brought into the house to bloom for Christmas. Bring the potted bulbs in every two weeks so as to have continuous bloom throughout the winter, first putting them in the cellar and then bringing them to the light and warmth of a sunny window.

Get in all the tender plants, either putting them in a pit, greenhouse, or conservatory. Remember to give plenty of air every day, but do not let the air blow directly on the plants when the weather is very cold. Water the plants thoroughly so the earth in the pot be wet through, and not a little sprinkling on top.

Save seed of specially fine vegetables and flowers this year, because of the scarcity. Send in your order to the seedsmen as soon as possible, and order a sufficient amount so as to have continuous crops next season, planting as much in your vegetable garden as you can well take care of.

Push to maturity the lettuce in the coldframes by feeding with manure water, and make another sowing of seed for a later crop, planting some in coldframes and some in a protected place in the open ground for a crop in April.

DIVIDE perennials; plant hardy Roses, plant tender ones, from pots, in spring. Trench the Rose beds by digging about two feet deep between the Roses and filling in with well rotted cow manure with a little bonemeal.

In planting out currants, gooseberries, raspberries, grapes, and all fruit and ornamental trees and shrubs dig deep holes putting rich earth with a handful of bonemeal in the bottom, leaving the poorer soil for the top. Pack the earth firmly about the roots, placing a stake on either side to which tie the tree so as to prevent the strong winds displacing them.

Virginia

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1917

November, 1917

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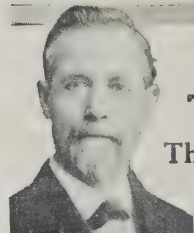
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GARDEN

MAGAZINE

NOVEMBER 1917

CONTENTS

COVER DESIGN—INSIDE THE GREENHOUSE;
WITH ONCIDIUM VARICOSUM - - - J. P. Verrees

PAGE

AMONG OUR GARDEN NEIGHBORS - - - - - 117

The Use of the Iris—The Hardy Yellow Rose—A Few Facts—Is the Fireless Cooker Used in Canning?—Why Does the Beetle Attack the Aster?—New Buddleia or Summer Lilac from Seeds—Flowers in February—Antirrhinum Gibraltarica—Ferns for House Plants—When Room Plants Become Leggy—An Original Sundial—Fall Color in the Rock Garden—Meconopsis Integrifolia—Why Buddleias Die—Wintering Canterbury Bells and Foxgloves—A Gardener's Winter Pastime—Spice Sweet and Sweet Bough. Six illustrations.

THE MONTH'S REMINDER - - - - - 120

THE ARNOLD ARBORETUM—WHAT IT IS AND DOES
C. S. Sargent 122

Photographs by E. I. Farrington, Arthur G. Eldredge,
George O. Stoddard and others

ELECTRICITY FOR HEATING FRAMES
W. C. McCollom 125

Plans by the author

LITTLE CHAT ON GREENHOUSE HEATING
J. N. MacArthur 127

Photographs Supplied by Author

THE GREENHOUSE THAT ISN'T HEATED
W. N. Craig 129

Photograph by Arthur G. Eldredge

GETTING THE GARDEN UNDER GLASS
F. F. Rockwell 130

Illustrations by the author

MAKING REAL USE OF THE GARDEN'S CROPS
Inga M. K. Allison 132

WHAT THE FLORISTS WILL OFFER IN HOLIDAY
PLANTS - - - - - Robert Kift 133

Photographs by H. Troth and J. A. Peterson

CAN YOU COOK A POTATO? - - - - - Effie M. Robinson 134

Photographs by H. E. Angell

WINTER PROTECTION - - - - - C. L. Meller 135

Photographs by the author

NOVEMBER IN THE SOUTH - - - - - 136

Opportunity for Fall Planting—Preparations for Next
Year's Food Gardens - - - - - J. M. Patterson

Fall Plowing for an Early Start - Samuel H. Garekol

SOCIETY NOTES AND NEWS - - - - - 138

NEW YORK SPRING SHOW - - - - - 138

THE EXHIBITION SEASON - - - - - 138

HELPING THE FRENCH ORCHARDISTS - - - - - 140

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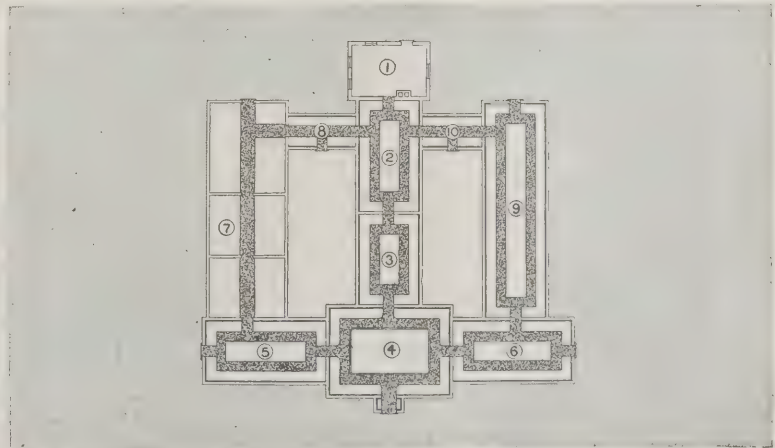
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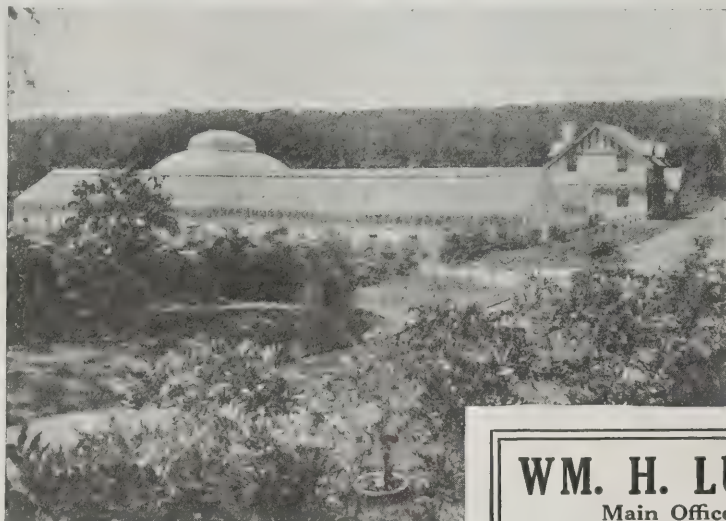
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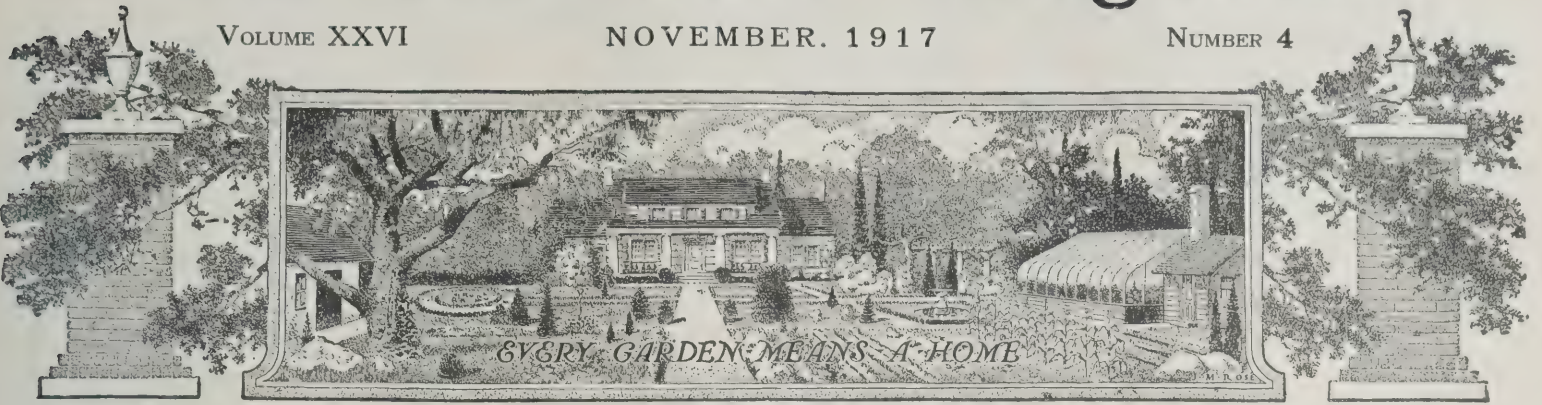


The Garden Magazine

VOLUME XXVI

NOVEMBER, 1917

NUMBER 4



EVERY GARDEN MEANS A HOME

AMONG OUR GARDEN NEIGHBORS

Irises as Soil Binders—We have read with a great deal of interest, in the June number of *THE GARDEN MAGAZINE*, the article by Miss Sturtevant, giving some of her experiences in raising Irises from seed. It is to be hoped that her suggestion in regard to the formation of an Iris Society may be acted upon at no distant date. Is there not a partial answer at least, to the question: "What shall I do with the ones I do not want to keep?" in the use mentioned for this type of Iris by Miss Tomlinson of Tennessee, in the same issue? In describing "a hillside garden," she tells us she planted German Iris to bind the soil. We know of another admirer of the Iris in California, who had a lot of Iris sent from an Eastern home, to plant on the terraces of her garden in her California home, for she said she had found they were the best plant to use for the location, to prevent washing of the soil. We are also told that in a certain locality in France they grow in millions, being used to hold together the sand banks that surround the vineyards. Surplus stock, particularly of the cheaper varieties and these new seedlings which are too good to throw on the dump heap—some better than many now being cultivated—could be utilized for this purpose at slight expense provided one is not fortunate enough to have the stock.—*Mrs. J. Dean, Moneta, California.*

The Hardy Yellow Rose.—In connection with the hardy yellow Roses mentioned by A. E. Thatcher in *THE GARDEN MAGAZINE* for April and R. S. Sturtevant in the July issue, it may be of interest that the Copper Austrian was wintered successfully here, for several years, where the temperature will be as low as 40 degrees below zero every winter, at some time. It was not killed back at all until last winter when there was severe frost and no snow until Christmas. The Scotch Yellow was not injured in the least. They have no protection of any kind, being on the open prairie, but ordinarily the snow covers them from four to eight feet deep. The Wichuraiana Hybrid, Klondyk, has survived our winter as has the Soliel d'Or ("earthed up" twelve inches or so). The Persian Yellow and Harison's are hardy here. This year I am trying Yellow Austrian, single and double; Gottfried Keller, an Austrian Hybrid; and Daniel Lusneur, the only yellow Rugosa I have met, although Dolly Varden is described as apricot, and sometimes

as pink. There is no lack of hardy Roses of other shades, but yellow is rare here.—*A. W. Mackay, Canada.*

A Few Facts.—I bought my first copy of *THE GARDEN MAGAZINE*, February 1905, at the newsstand and, strange to say, have been buying a copy there each month since that time. Not very good economy, but I have always considered that *THE GARDEN MAGAZINE* was cheap at any price. This is the season for fish stories, so a seed story may add variety. Last March I concluded I would sow some seed of the Cardinal Climber indoors, to get an early start. After filing the seeds as per directions, I planted them in a bulb pan, watered them and placed a pane of glass over the top, after which I set the pan on the radiator (vapor system heat). This was at 3 P. M. At 10 o'clock that night one seed had sprouted, and the next morning the young plants were all up with their heads against the glass. Can you "beat" it? My friends all look sad when I relate this story. I wonder why?—*A. A. Knoch, York, Pennsylvania.*

Is the Fireless Cooker Used in Canning?—The article on "Doing Up" the Surplus From the Garden" which appeared in *THE GARDEN MAGAZINE* for June was accompanied by a photograph showing a fireless cooker, but I have never seen rules for its use in canning—"fool proof" rules, I mean.—*J. H. Cary, Mass.*—The fireless cooker may be used in canning. Prepare the vegetables in the morning. When the fire is started in the range to get dinner the vessel containing the cans is put on the range, also a soapstone disc. By the time the water in the container boils the disc is hot, and both are placed in the fireless cooker for one hour. A demonstrator from the College of Agriculture at Ithaca claims that the same results may be obtained by blanching the vegetables and leaving them in the fireless cooker for four hours. I have had such splendid results with the three days' method that I have never tried the other way.—*E. E. Trumbull, New York.*

Why Does the Beetle Attack this Aster?—Every book on gardening and countless impassioned articles impress upon one the value and beauty of Hardy Asters. So far I have failed to notice even one mention of any difficulties incident to their cultivation. In my own garden, however, in Loudoun County, Virginia, they are

useless, as the aster beetle attacks them as ferociously as it does the Annual Asters. I have tried all the best known varieties and one only, Mrs. Kaynor, is immune. It is only these garden forms that are touched; the native species in our woods and along our lanes are absolutely untouched. It seems very strange that this trouble should be experienced only in my own garden—I doubt very much if it is so confined. And I think that the warning should be given to gardeners in our latitude (having about the same conditions as Philadelphia) that one's first garden effect should not come to naught. Do you know whether spraying would be helpful?—*Mrs. Floyd W. Harris, Washington, D. C.*

New Buddleia or Summer Lilac, from Seeds.—

Did it ever occur to you, who is an admirer of this new summer flowering shrub, that you can raise it from seed and obtain a plant different in growth, shape of leaf, shape of blossom stalk and even size of individual blossoms? Two years ago we sowed a lot of seed from a faded blossom spike and hundreds of plants came up—amongst them were several entirely different from the parent plant. The flower spikes, instead of being tapering or pointing and gradually blooming out, are rather solid in appearance and round, not at all tapering and more blossoms are out at one time, and the individual blossoms are larger giving the whole bush a much handsomer appearance; these new hybrids are very vigorous, rapid in growth and all together are a great improvement over the type.—*The Puaoor Farms, Washington.*

Buddleia Davidii, to which the numerous forms known as Veitchii, variabilis, magnifica, Wilsoni, etc., are referred, is extremely variable and our correspondent's form is undoubtedly merely another seedling variation and not a hybrid at all. Indeed a similarly compact form was seen at an exhibition of the Horticultural Society of New York in August.—*Ed.]*

Flowers in February.—In the September number of *THE GARDEN MAGAZINE* a lady makes mention of some of the flowers that give her a succession of bloom through every month of the year, but states that she does not always get outdoor bloom during January and February. She ought to add to her collection The Christmas Rose, Helleborus niger, which blooms profusely under the snow in midwinter.—*H. G. R., Pa.*

Antirrhinum Gibraltaria.—The Snapdragons such as we grow for cutting or bedding may on rare occasions live through the winter but are not dependable. In *A. gibraltaria* we have, however, a thoroughly hardy species which blooms right through the summer. The plant is particularly well adapted for culture in the rock garden, attains a height of 18 inches and carries spikes of pink flowers. It has come through the past two winters with no protection other than a very thin coating of leaves such as is given to other such plants and can, therefore, be classed as reliably hardy. I have not noticed any rust or blight on this Snapdragon, although the ordinary varieties grown for forcing or bedding are badly affected.—*W. N. C., Mass.*

Ferns for House Plants.—Many people have had my experience with the florists' all-ready-to-sell collection of Ferns in a fern dish. It is bought with high hopes; its life is short. When one considers that the florists put into a collection any of forty or so varieties of little Ferns, it is not surprising that such a selection is often a poor one. It is far better I find to specify varieties desired and have the fern dish filled with these. Among the best ferns for the house are the following: *Pteris cretica albo-lineata*; *Pteris Wilsoni*, a variety of *cretica*; *Polystichum Tsus-sinense*; *Pellaea viridis*; *Cyrtomium falcatum* variety *Rochfordianum*. The last named is a Holly Fern, one of the very best of ferns for fern dishes, single specimen plants and window boxes.—*E. E. S., Brooklyn, N. Y.*

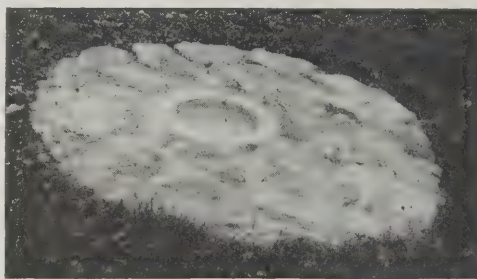
When Room Plants Become Leggy.—A very good way of dealing with Rubber plants, *Dracaenas*, *Cordylines*, *Aralias* and similar room plants that have grown spindly—or leggy as it is called—is shown in the photograph. In the first place, it is needful to cut a small pot in half with an old saw. Then at about the middle of the stem make a long slanting cut upward *half way through*. Fill the two halves of the pot with damp moss and place one on either side of the cut portion of the stem, finally tying into position as shown in the



Lowering a "leggy" plant by inducing root formation at a convenient height

illustration. Keep the moss damp and in a month or so the upper portion of the plant will have sent out a quantity of roots into the damp moss. When this has taken place the upper portion may be severed from the rest of the plant and potted up separately. Very often after this treatment the lower part of the plant sends up some shoots and, apart from the new specimen secured, its own improvement will be the outcome.—*S. Leonard Bastin, England.*

An Original Sundial.—The accompanying photograph shows a "home-made" sundial, which conforms to the garden and house to which it belongs. The house is a remodelled farmhouse surrounded by orchards and



Bird bath made by setting rough stones in cement around a shallow basin

fields bounded by old stone walls. These walls furnished material for the sundial, only the very choicest moss and lichen-covered stones being used, and all laid up in Portland cement. The flowers (all hardy perennials) in the garden are planted around an oval grass-plot, and the sun-dial stands in the middle of this with stepping stones leading to and around it from each side covered entrance.

Narcissus bulbs are to be planted at the base this fall for early spring flowering, followed later by summer flowers.

The dial itself is of bronze. But it is the cement top which is unusual, being rounded off and roughened to look as much like one of the stones as possible, and having ferns and leaves pressed into the cement while it was still soft and removed just before it dried. A bird bath was made in the same way, using an old china wash-bowl as a foundation built up with cement to be shallow enough to please our feathered friends. The basin is surrounded by paving stones laid in cement. The imprints of the ferns and leaves look not unlike fossils. Indeed those in the bird bath might have been made by leaves falling from the Maple tree overhead.

Some time there is to be a teahouse at one side, with a thatched roof and stone seats; built in a semi-circle into the stone wall which separates the flower from the vegetable garden—and which, covered with vines—forms the wonderfully artistic background for the whole garden.—*B. S. Provost, Winsted, Connecticut.*

Fall Color in the Rock Garden.—It seems as though a rock garden was mostly a spring garden but with September my hit-or-miss patch (that for lack of better term I call a rock garden) has gathered charm. A few big plants of *Campanula rotundifolia*, still decked with their lavender bells, are rampant; a little colony, near by, of the doubtfully hardy *Parnassia caroliniana* with its shiny basal leaves and eight-inch stems bearing sea-foam-white buttercups forms a bit of contrast. Farther on, gray *Artemisia* struggles for supremacy with the tender green of *Sedum*

spectabile, its rather dull mauve-pink touched off by the deeper tones of the variety Brilliant. Here and there wild Asters, the smooth leaved laevis, the starry ericoides and clustered cordifolius, have seeded in; the shade-loving corymbosus lightens most happily the dull "magentery" pink of *Lespedeza Sieboldi* which throws its graceful sprays out over an outstanding boulder, while lower down in the moist shade the white again enlivens the scattered yellow of the Wood Goldenrod. Here also are dull blue Closed Gentians, late lingering Cardinal-flowers and the frosted fronds of Ferns. The frost brings many a colorful tint to a wider landscape but in my restricted space where perennials reign alone *Euphorbia corollata* is all that gives a scarlet bit of autumn glory. Weirdly well does it blaze above clumps of the true Autumn Crocuses but most painfully does it swear at the pinker tones of *Colchicums*. How fortunate it is that garden things are not always just to your mind for where then would be that pleasure of striving for the ideal?—*R. S. Sturtevant, Wellesley Farms, Mass.*



Such a sundial is easily made from a few large stones and a little cement

Mr. Duffy's Essay in the September issue of THE GARDEN MAGAZINE is the cause of this communication. In the past, I had had a great deal of trouble handling the by-products of the chicken crop, and having solved the problem to my own satisfaction, my experiment may be of use to Mr. Duffy or others who have had similar difficulties. Several years ago my attention was called to a commercial poultry litter and the advantages claimed were: that it did away with the use of dropping boards and always kept the house dry and odorless. I have been using it now for five years and the results are most satisfactory. The house is cleaned about three times a year and the fertilizer put in barrels in a dry place to use when wanted. When removed it is a dry odorless powder and is very easy to handle. It does not bake the soil; in fact, I think that the peat of which the litter is made improves it. While the litter is rather expensive, I think the resultant fertilizer more than repays the cost, and its use certainly reduces work in the hen house to a minimum.—*B. Preston Schoyer, Pittsburg, Pa.*

Meconopsis Integrifolia.—It is now some eleven or twelve years since Mr. E. H. Wilson first sent to England seeds of this extraordinary plant from Western China, and when subsequently exhibited in flower, for the first time at the Temple Show, I believe, it immediately arrested the attention of all interested in hardy plants. Although several species of *Meconopsis* were known and cultivated it was not supposed that any of the genus could develop flowers of such wonderful size and beauty, and though of only biennial duration it was at once recognized as one of the most remarkable of the many new plants received from Mr. Wilson. Leaving England soon after, I did not have an opportunity of becoming better acquainted with this *Meconopsis*, but in the early spring of 1916 I saw seeds advertised in an English list, procured



One of the plants of *Meconopsis integrifolia* flowered by Mr. Thatcher. "Possibly the most gorgeous alpine extant."

some, and the results may interest GARDEN MAGAZINE readers.

The seeds were fortunately fresh, which is important in cultivating *Meconopsis*, and sown in shallow pans with ample drainage and light sandy soil; quickly germinated in a cool house and as soon as large enough to handle were potted off singly into small pots in a mixture of loam, decayed leaf mold and sand. When well established after the move they were transferred to a coldframe and kept well shaded from the sun. In this situation they made healthy looking plants, and by the middle of summer were ready for larger pots or planting out. Having only nine or ten plants I decided to put them in eight-inch pots with plenty of drainage and in a mixture of loam and well decayed cow manure, an ingredient to which this plant is extremely partial. By fall strong plants had resulted, and when the leaves died off, a healthy looking crown was left for the next year. The pots were wintered in a coldframe with sufficient protection of leaves to prevent their breaking. About the beginning of May, I was glad to see the new growth starting up, and then removed the plants to an open but shaded position, keeping them well supplied with water when necessary. This treatment apparently agreed well with them, for by the end of July strong stems were being sent up from the centre of half a dozen plants, and during the third week in August *Meconopsis integrifolia* flowered for the first time in America. (As noted in the September issue, page 39.)

Mr. Wilson, in his most interesting book, "A Naturalist in Western China," writing of the *Meconopsis* says: "... and *M. integrifolia*, with yellow flowers eight inches or more across—possibly the most gorgeous alpine plant extant." This description is well deserved, and after seeing a few plants in flower in this country one can well understand what a wonderful sight it must be to see many thousands of these great blossoms thickly huddled together on the mountain

slopes of Western China, in its home among the snows. The leaves of *M. integrifolia* are eight or nine inches in length by two in breadth, silvery green in color and densely covered with strong hairs, as indeed is the whole plant. The flower stem, about one and a half inches through at the base, rises some twenty inches above the foliage, and carries from five to seven cup-shaped flowers. The first flower to open on each plant is somewhat larger than the others. The terminal blossoms on the plants flowered here were seven inches across, and the subsequent ones six inches. The color is a most beautiful pale yellow, and the beauty of the flowers is much enhanced by the conspicuous yellow stamens clustered around the base of the corolla.

During the past spring I obtained more seeds which germinated well and have made a splendid growth planted out in heavily manured ground on the north side of a hedge. As this *Meconopsis* grows at an elevation of from 15,000 to 16,000 feet amid almost perpetual snow there can be no question of its perfect hardiness, and its successful cultivation is not difficult. It is essential that one obtain fresh seed, and from the time that this is sown until the plants flower there must be no attempt at coddling. A cool, shady position, and a soil well enriched with cow manure are the most important cultural points to observe.—A. E. Thatcher, Bar Harbor, Maine.

Why Buddleias Die.—The Buddleias, or Summer Lilacs, are so persistent flowering that every garden should contain one or two of them. Having grown a number of varieties I have decided that *variabilis magnifica* is decidedly the best, its racemes are long and full and carried in wonderful profusion. I find that these Buddleias need no winter protection, provided they are not cut back in the fall. [This is our experience, too.—Ed.] Leave all the growth on until spring, then cut back close to the ground for the best results. A good many have made the mistake in doing this cutting back in late fall and in nearly every case plants have then died. As we occasionally get temperatures here of 10 to 15° below zero, Buddleias may be classed as reliably hardy. A very pretty border just now has a background of *Buddleia magnifica*, in front of this a broad band of *Anemone japonica alba* with a bordering of *Heliotrope*.—W. N. C., Mass.

[In a garden at Woodmere, L. I., we saw lately, a large number of self sown plants of the *Buddleia*. They had sprung up all over the garden.—Ed.]

Wintering Canterbury Bells and Foxgloves.—I have tried for several years to raise Canterbury Bells and Foxgloves, but with very poor success because I cannot hit upon a scheme for wintering them. I have no greenhouse nor coldframe even, my garden being only a 200 x 12 ft. border. Has any one else in the latitude of Chicago had success in wintering these plants under these circumstances? I understand that it is not the cold but rather the rotting of the crowns caused by standing water. Would overturned boxes make a suitable covering? I am trying this year, too, to raise some of the rarer perennial Bellflowers besides the lovely biennials. Are they also hard to winter? I take a wealth of magazines but can truly say that THE GARDEN MAGAZINE gives me a

pleasure that none of the others furnish.—"Flower Lover," Illinois.

—Canterbury Bells and Foxgloves cannot be wintered with any assurance of substantial success in the latitude of the northern half of Illinois without a coldframe. In fact, I have given up raising them after some years of struggle because I prefer to devote the frames to other subjects such as a crop of St. Brigid Anemones and *Ranunculus* for spring cutting and to winter *Chrysanthemums* of doubtful hardiness, Wallflowers, Tufted Pansies, parsley, November and early December head lettuce, and for an early start for some vegetables in the spring.

While Canterbury Bells and Foxgloves are showy and altogether desirable, I think it is necessary to have a good sized planting, one hundred plants, say, to develop their full gardening value. If the plants are grown to proper development in the fall to produce their best crop of flowers, they are bulky and take up a lot of room in the limited quarters of a coldframe. The best success I have had with them outside a frame consisted in raising the seedlings in a row, thinning them enough to allow full development, and then in the fall covering them with planks, supported on bricks sufficient to clear the foliage without pressing upon it. I should say that the row was hilled up. In this way the Foxgloves came through nicely and a large percentage of the Canterbury Bells. The latter I find more susceptible to



Well grown example of the rare *Meconopsis integrifolia*. Leaves 8-9 inches long, silvery green; flowers yellow, 8 or more inches across. (Photograph made in England.)

moisture than the Foxgloves. They are hardy so far as cold is concerned but the crowns must be kept reasonably dry and protected from the thawing and freezing so common in this section.

Here is another catch in this method. Having brought them through the winter, it becomes necessary to transplant them into the quarters reserved for them. In disturbing the roots in moving them, a large number will devote their energy to reestablishing themselves and will not throw up blossom spikes. To be sure of a crop of bloom they should be allowed to remain in permanent quarters. To obviate the difficulty of moving them I have wintered Canterbury Bells in eight inch pots in the coldframe. As they make a big root growth, they naturally become cramped and when planted out in the spring do not give the vigorous growth of blossom spikes that they should.

When I want a display, now (and every once in a while I revert as I have had them on and off for years), I improvise a coldframe with soap boxes and such vagrant window sash as I can lay hands upon, and place it over the plants where they are to bloom. This is an easy matter and the idea of making them air and cold tight need not be considered. The main consideration is to keep them dry.

The same ideas applies to that stateliest of all fall garden biennials, the Chimney Bellflower, *Campanula pyramidalis*. All three are biennial and really are more trouble than they are worth unless one has at his command ample coldframe facilities. The improved forms of the Peach-leaved Bellflower, *Campanula persicifolia*, I find an acceptable substitute for the Canterbury Bell. They are not only perennial but come through all sorts of weather without any fussing save a light mulch of leaves or pine needles in the fall.

Foxgloves often will survive the winter without protection—that is, while the central crown dies, there will be side buds to survive and grow. I have two large flourishing clumps now awaiting cold weather which came up from self sown seed two years ago and have come through without blossom crowns, but plenty of leaves. I am letting them alone in the hope that possibly next spring they may function. The old-fashioned Yellow Foxglove, *Digitalis ambigua* or *grandiflora*, is the hardiest of the tribe; that is, it is most resistant to changes of thawing and freezing and is more nearly perennial as I have had it endure for three or four seasons, but it succumbs in time. —*Sherman R. Duffy, Chicago, Illinois.*

A Gardener's Winter Pastime.—There are many indoor activities for the gardener during the cold season. There are outdoor activities as well. One of the most pleasant of these is the gathering, trimming, sharpening, and storing (ready for spring use), the brush for peas, and the poles for all kinds of climbing

beans. After all, there is no support for peas like brush, and the wise gardener will always use it; while poles are essential for climbing beans. Aside from the fact that it is a delightful outdoor pastime, the gathering of brush and poles in cold weather is desirable because winter is the time for such work. All the bushes and trees (except the evergreens, which could not in any event be utilized) are bare. The eye can see at a glance what is good and what is not. Also, the material so gathered, while bare, and with most of the sap down, will be green and tough and strong, and will last through several seasons. This plan is surely far ahead of the crude custom of visiting some old heap of dead brush (usually from an



A novel idea for small bulbs. Planted on floating pieces of cork with moss

orchard's pruning) and trying to pick out something which is not too brittle or too rotten to use—and doing it in haste, at a time when there are a thousand other calls from the growing garden.

While small attention has been paid to the kinds of brush and poles best adapted to the use to which they are to be put, there is something of importance to be said on that score. Among the very best brush for peas are the heavier trimmings from Privet hedges; young Oak bushes (especially Scarlet Oak) that have a habit of branching heavily; Wild Cherry shrubs; and sprouts from any hardwood stumps except Hickory and Chestnut—these last, sending up long straight shoots, are undesirable on account of their lack of small branches. However, these very ones are admirable for beanpoles. As a rule they are straight and strong, and their lasting quality is excellent. Among other woods that are well adapted to this purpose are common Birch, Alder, all kinds of Oak, Ash, and Gum. In the South young Pine saplings are frequently used. Of course, it may be said that poles of any kind will support beans; and this is commonly true. But a pole

of any kind, after one season's use, may collapse; any kind of a pole may be crooked, scrubby, unsightly. Even in the growing of so unromantic a product as beans, the element of beauty should not be neglected.

I cut poles and brush with a sharp scout-hatchet; and as for getting the gathered matter home, I follow different plans. Sometimes it is pulled in on a handsled; sometimes it is stored away in a secret place until I have time to go for it; sometimes I shoulder it in, or drag it in, about twenty poles at a time.—*A. Rutledge, Mercersburg, Pa.*

Spice Sweet and Sweet Bough.—In looking over some back numbers of THE GARDEN MAGAZINE (which is a good thing to do), I came across a neighborly note from M. G. Kains in eloquent praise of the Sweet Bough apple. I was particularly interested as I have on my place a very old apple tree whose identity has puzzled us and I seem in Mr. Kains's note to detect a clue. Our tree is near the kitchen door, as if placed conveniently for small people, and about here it is called Spice Sweet. This however, I feel sure is a local name as I have not been able to find it in apple lists of either books or catalogues. Local plant names are always interesting and this one is particularly pleasant sounding and descriptive, but as our old tree is well down the other side of the hill toward the sunset—so old that though we have done all we know to prolong its valued life, its seasons are plainly numbered and we are anxious to plant others against the time when the spring sunshine shall fail to awaken its fragrant blossoms. Mr. Kains's adjectives descriptive of the Sweet Bough, "delicious, luscious, scrumptious, splyschious" so exactly repeat those used by my youngsters in praise of our favorite, who add delightedly "the juice just runs down our chins, mother," that I am hoping that they may be the same. It is a green apple with an alluring pink cheek; it is sweet even at its greenest and so juicy that one's chin is really in danger of inundation. Mr. Kains lays stress upon its apparent harmlessness to the very young. Here again is a point in common. Our Spice Sweet appears to cause no trouble though eaten with but short intermissions from early rising to early going to bed. Plainly it is an apple to be considered if one could but find its true identity. If Mr. Kains can help us we shall be grateful, or if any neighbor knows another name for this old-fashioned apple, which might be well named "The Mother's Friend," we shall be so happy to hear it.—*Louise Beebe Wilder, Pomona, N.Y.* —[Spice Sweet is a "good" name, according to the "Apples of New York" where it is recorded as of a variety commonly grown about 1830, but no description is given. Can it be that Mrs. Wilder has a real relic of old times—it's quite possible that the old variety has persisted in that region remote from travel.—*Editor.*]

THE MONTH'S REMINDER

CLEARING UP AND CLEARING OUT FOR WINTER

THERE are plenty of things to keep the hustling gardener occupied during the shortening days of November, if he is to get everything cleaned up and ship-shape before winter.

Bringing in the last of the tender bulbs needs early attention now. They should be

taken up before the ground actually begins to freeze, and be stored where they can dry off gradually, and still be safe from frost. *Do not cut off the old stalks close to the bulbs or roots.* Leave six to twelve inches attached when you take them up, so that they can "ripen off" gradually and naturally—other-

wise they may shrivel or rot. Handle with care all fleshy roots such as Cannas and Dahlias.

After the bulbs or roots have had a chance to dry off (but before there is danger of their being sufficiently dried off so much as to cause shrinking or shrivelling) carefully

label and store in open boxes or crates in a place where the temperature will be around 40 degrees, and away from light. The very tender bulbs such as Caladium, Calla, etc., will need a temperature some ten degrees higher.

Vegetables for Storage

ONIONS, squash and such other vegetables which may have been stored in temporary quarters to cure may now be put where they will be safe for the winter. Look over everything with the greatest care. Any that are imperfect or show even the slightest kind of bruising or decay must not be stored but used at once.

Most fruits and vegetables keep best in an even temperature only a few degrees above freezing. A wet cellar, tightly closed, will surely cause decay; while in an abnormally dry air, close stored products will fail to keep or will shrivel, causing loss not only in bulk but of quality too. Good ventilation is one of the important points about the storing place. For full details, and directions for storing, see the October number of THE GARDEN MAGAZINE.

Going to Use Concrete?

WALLS, foundations, fence posts, repairs of all kinds and jobs innumerable about the grounds can be made with concrete. It is not difficult to use, but the one big danger at this time of the year, just as the gardener begins to find himself caught up with his work, and with a little leisure for new things, is that it may be spoiled by freezing weather before it has a chance "to set." The danger from light frost can easily be avoided by covering up the work with warm horse manure or even with blankets and bags, until it is beyond the danger point—the first night or two after being put in place. If you have never yet made use of concrete for such work try it out this fall. It is simpler than most kinds of carpentering or repairing. The only equipment needed is a supply of Portland cement, clean, sharp sand or clean, hard gravel or cinders, and a strong, shallow box or stout, flat surface—such as an old shutter or cover for the hotbed—a hoe to mix them with and a shovel to put them into place after they are mixed. From any of the firms selling Portland cement you can get literature full of excellent suggestions on what may be done with concrete.

Get Ready for Spring Before Winter Comes

GET together supplies needed for starting seeds, repotting plants, etc., in February and March, when the garden is frozen up tight. Put a barrel or two of good loam or loamy compost down cellar, together with sufficient supplies of leafmold, chip-dirt, moss, sand, and any other ingredients you are likely to require. Coldframes or hotbeds, if they are not used through the winter will take some time to get into shape for planting if all preparation is left to spring.

Trench Celery for Fall Use

THE earliest celery, which has been blanched in the open, will now be about used up. That wanted for use until real hard freezing, say till the last part of December, may be handled readily by "trenching" it out of doors. Select a convenient, well drained place and open up a narrow trench, fifteen inches or so in width, and deep enough so that when the celery is packed in it—roots and all—the tops of the foliage will come about level with the ground. In taking up the plants, leave on all the soil that clings to the roots. Do not "handle" the plants in wet weather, but put them away when dry, pack-

ing them closely, upright. As soon as there is danger of weather cold enough to hurt the celery, cover the trench over with marsh hay or leaves, preferably the former. As it gets still colder, put soil over the mulch, for further protection. The stalks will bleach out quickly in the trench, and can be taken out as required.

Running a Winter Resort for Bugs?

DON'T get the mistaken impression that the job of cleaning up the garden at the conclusion of the season is for the sake of looks alone. One of the most effective steps toward controlling insects and diseases is to prevent their finding any place in the garden where they can put up for the winter. One small pile of rubbish or a handful of diseased leaves left on the ground over winter may carry enough eggs or spores to be the source of total failure of several crops next spring! *A match in time saves ninety-nine garden troubles!* Make a thorough job of it. Begin at one end of the garden and clean up as you go—any old stalks, cut-off tops, brush, poles, whatever may be left, row by row—until you get to the other end. Flower-beds and borders are much more likely to be overlooked when

DO THIS MONTH

1. Take in tender and semi-hardy bulbs before ground freezes
2. Put vegetables in permanent winter quarters
3. Do concrete work for walls and so forth before frost
4. Provide soil and other materials for next spring's planting needs
5. Trench celery for fall use
6. Clean up the garden
7. Clean up the flower beds
8. Take up roots for forcing
9. Mulch bulbs, hardy borders and roses
10. Bring in first bulbs for forcing
11. Provide suitable conditions for plants in the house
12. Watch carefully vegetables and flowers under glass
13. Begin winter spraying

it comes to cleaning up than is the vegetable patch. But it is just as important to get them cleaned too.

When the tops have been killed down by frost, go over every bed carefully. Remove the annuals and burn them, as soon as they are dry enough. Take a scythe or sickle and cut off the tops a few inches above the ground. Remove these to a place where they can dry and be burned. Rake up any fallen leaves which may be diseased. Prevention pays! Replace by a clean mulch.

Save Your Temper and Your Tines

BEFORE the ground begins to freeze take up roots of asparagus, rhubarb, and Witloof chicory for winter forcing. If the soil is very dry, water thoroughly a few hours before you take them up. Then store them in a frame or cool cellar, where they can be taken into heat as wanted. In taking up roots an edger with which to cut off the ends of the largest roots under the plant is a very handy thing in addition to a sharp spade. Another scheme is to put a heavy mulching around the plants to be taken up, so that the ground will not freeze for some weeks later than it ordinarily would.

And Now Put the Garden to Bed

IF YOU have followed the suggestions given in previous months you have provided yourself with marsh hay, dry finely rotted manure, and dry hardwood leaves, put away under cover where they are dry and easy to get at. Now is the time!

As soon as the ground freezes up fairly hard, with the prospect of remaining so, is time to use these coverings. The winter mulch is not for the purpose of protecting the plants from the cold. *They can be killed with too much care.* It is to prevent the winter and early spring sun from flirting with them, and raising hob by thawing the ground about their roots and getting them all excited about coming out in their new foliage before warm weather really means to stay, that the thoughtful gardener puts on a winter mulch.

Dry manure is good for the perennial border, about newly planted hedges, and in other places where much of it can be raked or forked into the soil in the spring. For the Rose bed, nothing is better than dry leaves, held in place by a low strip of wire netting supported by small stakes. Manure can be applied under the leaves, but care should be taken not to put it in position, *either here or any where else, before the ground has frozen* and the mice have taken up their winter quarters elsewhere. For the new bulb bed, manure with a good percentage of straw, or manure and leaves mixed together, makes a good mulch. Tender Roses may be given additional protection by drawing the soil up about them in a steep cone, before the mulch is put on.

Blossoming Bulbs for Thanksgiving

THE first of the winter blooming bulbs to be put in the frames, pit, or cellar for root-growth may be taken in now for "forcing" if they have made a fairly good mass of roots. Hyacinths and Polyanthus Narcissus are the soonest to be ready for bringing into heat—either in the greenhouse, or in the dwelling. Give a very cool temperature at first, then gradually increase both water and temperature. If you haven't any bulbs started, try Hyacinths in a few of the special hyacinth glasses, and Paper-white Narcissus and the Chinese Sacred Lily in pebbles, or better, prepared fibre or humus.

Half a Day for the Plants in the House

ONE reason why plants in the house so frequently fail is because no serious effort is made to give them congenial conditions. The dwelling house is by no means an ideal place for plants—and incidentally the atmosphere that is too hot, "stuffy" and dried out for plants to live in it, is far from being good for humans! If you are going to have a window garden, take a few hours and fix it up so that the flowers in the window can be really watered without spoiling the carpet on the floor. If a bay window is used, a curtain can be hung in such a manner that the plants will be somewhat shut in by themselves a good part of the time, and during sweeping, dusting, etc., they can have a cleaner and more moist atmosphere.

Ready for Enemies?

THE green plant louse will get you if you don't watch out!

Conditions under glass are usually such as to make more likely the attacks of insects and disease than in the open. The most certain to appear, and the most troublesome, if you allow him to get a good start, is the ordinary aphid or plant louse. Fumigate regularly and spray at the first sign. Careful watering and plenty of fresh air, with an avoidance of draughts, will reduce greatly the danger of trouble from mildew or blight or dropping or yellowing foliage. The last two are sometimes due to the presence of illuminating or coal gas, even if in such small amounts that the human nose doesn't detect it.

The Arnold Arboretum—What It Is and Does

By C. S. SARGENT, the First Director

Illustrated by photographs made in the Arboretum

THE question is often asked: What is the Arnold Arboretum and what is it expected to accomplish for the benefit of the world?

A department of Harvard University, the Arboretum is a museum of trees and other woody plants and its object is to increase the knowledge of such plants. This museum owes its origin to the imagination of George B. Emerson. In 1868 James Arnold, a merchant living in New Bedford, Massachusetts, died and at the suggestion of Mr. Emerson left \$100,000 to trustees, of which Mr. Emerson was one, to be used by them for the advancement of agriculture or horticulture. Mr. Emerson had long been interested in trees and had prepared for the Commonwealth an excellent "Report on the Trees and Shrubs Growing Naturally in Massachusetts," which had been published by the state. Another of Mr. Arnold's trustees, John James Dixwell, was also interested in trees and had formed on his estate in Jamaica Plain a collection of trees which had in the middle of the last century few equals in Massachusetts. Mr. Emerson therefore, was naturally supported by his fellow trustee in his idea of using the Arnold money to establish an Arboretum, and between them they made in 1872 an arrangement with Harvard University by which they turned over to it the Arnold bequest, the University in return agreeing to devote to the Arboretum a part of the farm in West Roxbury which had been left to it by Benjamin Bussey to be used for a Farm School. This agreement provided that the University should grow on this land every tree and shrub able to endure the climate of Massachusetts. One hundred and twenty-five acres of the Bussey Farm was at first included in this arrangement and several years later the University added seventy-five acres more to the Arboretum, the area of which was further increased, as will be explained, by the City of Boston.

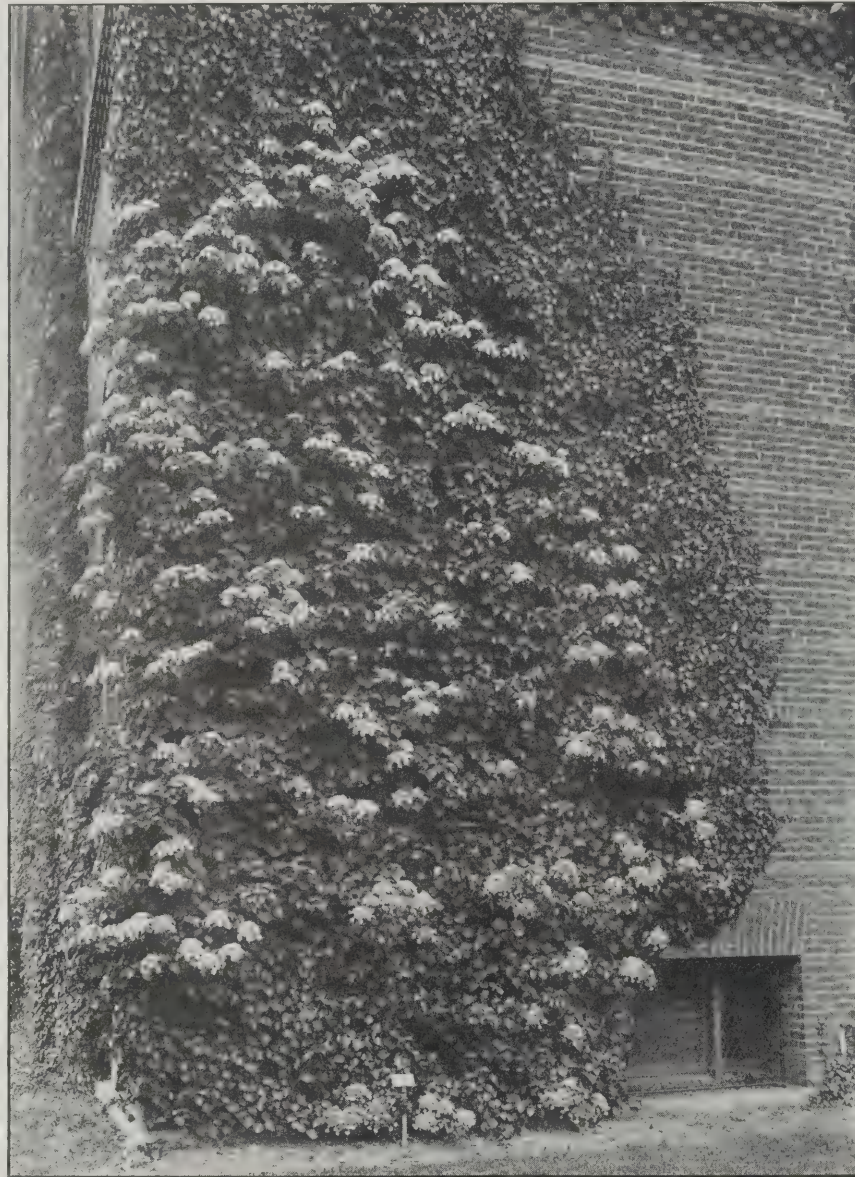
It is safe to say that none of the men directly engaged in making this agreement had any idea what an Arboretum might be, or what it was going to cost in time and money to carry out the agreement to cultivate all the trees and shrubs which could be grown in Massachusetts, and certainly none of them were more ignorant on these subjects than the person selected to see that this agreement was carried out. He found himself pro-

vided with a worn-out farm partly covered with native woods nearly ruined by pasture and neglect, with only a small part of the income of the \$100,000 available, for it had been decided by the University that the whole income could not be used until the principal had been increased to \$150,000 by accumulated interest. He was without the support and encouragement of the general public which knew nothing and cared

Legislature having been obtained to such an arrangement, a contract was made between the University and the City which permitted the Park Commission of Boston to seize by right of eminent domain the land devoted to the Arboretum and then to lease back to the University for one thousand years all this land, with the exception of that to be occupied by a system of drives and walks which were to be built by the City after plans to be prepared by Mr. Olmsted and which were to be maintained by the City during the period of the contract. The City further agreed to add to the Arboretum land necessary for carrying out Mr. Olmsted's plan for the roads, to protect the Arboretum by its police and to assume any taxes which might be levied on it during every day during the continuance of the contract from sunrise to sunset. The City was slow in building the roads, and it was not until 1885, that the planting of trees in their systematic arrangement was begun.

Among the things which have made the Arboretum what it is the most important is this contract with the City of Boston which assures its permanency in its present position and frees it from the danger of taxation. Next in importance was the invitation which I received in 1879 from the Government of the United States to prepare in connection with the taking of the Tenth Census a Report on the Forest Wealth and the Forest Trees of the United States. In preparing this Report I was able to visit all parts of the country and to employ as assistants the men who at that time were best acquainted with North American trees. Many of these men became actively interested in the Arboretum, and the collections which they made as a basis for the Census Report laid the foundation of the Her-

barium and made it possible to add to its collection of living plants many rare North American trees and shrubs. This Government work gave to the Arboretum a certain national standing and recognition which has been useful to it. It led to the formation and arrangement by the Arboretum of the great collection of North American woods in the American Museum of Natural History in New York, and it made it possible to prepare here "The Silva of North America" and other publications on American trees.



Climbing Hydrangea (*Hydrangea petiolaris*) introduced by the Arboretum is the only hardy woody vine with conspicuous flowers which can cling firmly to a brick wall. On the Administration Building

less about an Arboretum and what it was expected to accomplish.

Fortunately the late Frederick Law Olmsted became interested in the project and suggested that the City of Boston might well include under certain conditions the Arboretum in its park system. This plan met with little favor and was strongly opposed by the University and the Park Commission of the City, and it took five years of exceedingly disagreeable semipolitical work to bring it about. In 1882, however, the consent of the



This view across the Juniper collection illustrates the method of grouping albed plants for easy comparison



Looking across the Beech collection toward the Hemlock Hill clothed with a native grove and fronted with Laurel

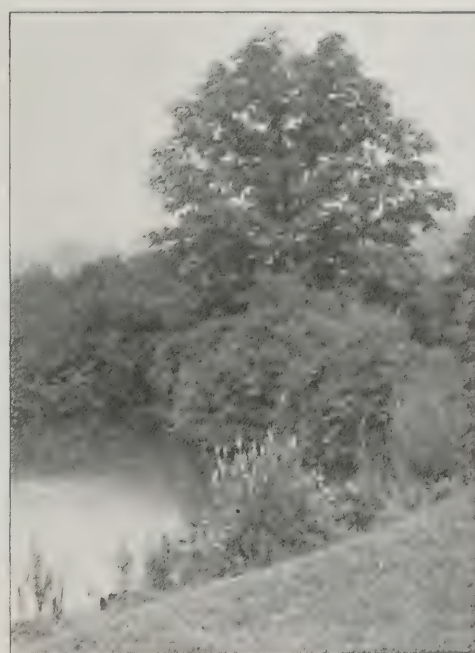
Views in the Arnold Arboretum



Seeds of a hardy form of Cedar of Lebanon were collected for the Arboretum on the Anti-Taurus Mountains in Asia Minor in 1901. The plants have never suffered from the cold



In the collection of Crabapple, *Malus theifera* is conspicuous for its open branching habit



Acanthopanax (*Kalopanax ricinifolium*) from seed collected in Japan in 1892. Tree is now thirty-five feet tall. Has clusters of white flowers in July

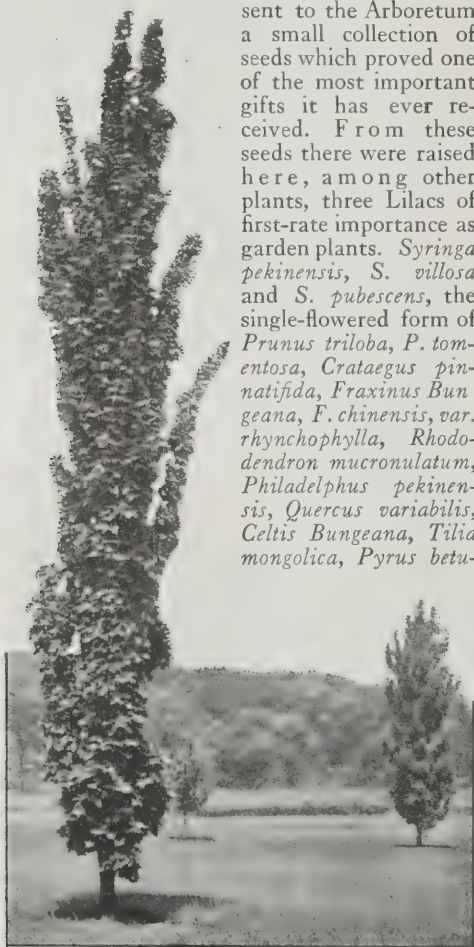


The main roadway through the Arboretum is a succession of remarkable groups and individual plants. The Forest Hill Road; Cherry collection on the left with the largest plant of the Sargent Cherry in the United States in foreground; Crabapple collection on the right

When the President and Fellows of Harvard University bound themselves in return for Mr. Arnold's \$100,000 to grow every tree and shrub which could endure the climate of Massachusetts they committed themselves to an undertaking the difficulty of which could not have been foreseen, for when they made this agreement with the Arnold trustees a comparatively small number of the plants now growing in the Arboretum had been cultivated or even discovered. The last forty years has seen great activity in botanical exploration for the discovery and introduction of new trees and shrubs, and in the creation of new forms by the art of the hybridizer. In such work the Arboretum has played a not unimportant part. After North America eastern Asia has been the principal field of its activities, for the trees and shrubs of north-eastern Asia, next to those of northeastern North America, are best able to adapt themselves to the climate of New England. The Arboretum's first direct transaction with eastern Asia was in 1878 when William S. Clark, who had left the presidency of the Massachusetts College of Agriculture at Amherst, to establish a similar institution at Sapporo in northern Japan, sent a small collection of Japanese seeds to the Arboretum. From these seeds were first raised in America the Japanese Tree Lilac, *Syringa japonica*, *Cercidiphyllum*, the largest tree in Japan, the two climbing Hydrangeas, *H. petiolaris* and *Schizophragma hydrangeoides*, *Phellodendron sachalinense*, *Magnolia kobus*, var. *borealis* and other interesting plants.

In 1882 Dr. Bretschneider, the learned physician of the Russian Embassy at Peking,

sent to the Arboretum a small collection of seeds which proved one of the most important gifts it has ever received. From these seeds there were raised here, among other plants, three Lilacs of first-rate importance as garden plants. *Syringa pekinensis*, *S. villosa* and *S. pubescens*, the single-flowered form of *Prunus triloba*, *P. tomentosa*, *Crataegus pinnatifida*, *Fraxinus Bungeana*, *F. chinensis*, var. *rhynchophylla*, *Rhododendron mucronulatum*, *Philadelphus pekinensis*, *Quercus variabilis*, *Celtis Bungeana*, *Tilia mongolica*, *Pyrus betu-*



These two pyramidal forms of our common Maples should be of some landscape value. Sugar Maple on left with Red Maple, rare, on right

laefolia, *Hydrangea Bretschneideri*, *Betula dahurica*, *Lonicera chrysantha*, *Ostryopsis Davidiana* and other valuable plants.

It was the success in Massachusetts of the plants raised from the Bretschneider seeds that turned my attention to the importance of more thorough botanical exploration in China than had yet been attempted and led to the Wilson expeditions to central and western China. These were undertaken first by a London nurseryman at the suggestion of the Arboretum on lines proposed by it, and later by the Arboretum itself. Mr. Wilson's travels have greatly increased the number of trees and shrubs which are now cultivated in the United States and Europe and have made the Arboretum the best place for the study of the ligneous vegetation of eastern Asia.

In addition to the plants raised from the seeds sent by Colonel Clark from Sapporo the Arboretum had been able in its early years to gather together a number of plants sent to this country from Japan to Francis Parkman, the historian, and to the Parsons' Nursery at Flushing, New York, by Dr. G. R. Hall and by Thomas Hogg, and Japanese plants were growing so well here that I went to Japan in the summer of 1892 in the hope of increasing the collection of Japanese plants in the Arboretum. As a result of this journey the Arboretum was able to add to its collections all the deciduous-leaved Japanese Oaks, *Ulmus japonica*, *Fraxinus longicuspis*, three species of *Enkianthus*, two new Crabapples, *Buxus japonica*, *Abies sachalinensis*, *Prunus Maximowiczii*, *Tilia japonica*, *Acer capillipes*, *A. nikkoense*, *A. Miyabei*, and *A. diabolicum*, *Carpinus cordata*, *Juniperus rigida*, *Ostrya japonica*, *Rhododendron Kaempferi*, *R. japonicum*, *R. rhombicum* and several other trees and shrubs principally from the northern island which had escaped the attention of earlier travelers in Japan in search of the seeds of native plants. In the autumn of 1905 Mr. J. G. Jack of the Arboretum staff passed a few months in eastern Asia and, although he was only a short time in Korea, made a collection of seeds there and in northern China from which several plants of interest and beauty entirely new to cultivation were raised, including *Rhododendron poukhanense*, *Indigofera Kirilowii*, *Erodia Daniellii*, *Quercus aliena*, *Diervilla florida venusta*, *Periploca sepium*, and *Rosa Jackii*.

The Arboretum endeavors to increase the knowledge of trees by arranging the living plants in what may be described as a Tree Museum. This Museum, which now contains one of the largest collections of trees and shrubs of the Northern Hemisphere in the world, occupies two hundred and twenty



Cotoneaster hupehensis which Prof. Sargent considers to be the best of all the shrubs introduced by Wilson for New England. Deciduous, laden with white flowers in spring

acres of hill, valley and meadow contributed for the purpose by the University and in small part by the City of Boston. Part of this land is occupied by good native Oak woods and by a fine grove of Hemlock trees which cover the steep slopes of what is called Hemlock Hill, the crowning feature of the Arboretum. On the remainder of the ground the trees have been arranged in family groups and in botanical sequence, all the species of each genus being together. In the case of important native trees several individuals have been planted comparatively near together with a single individual of the species sufficiently far from any other tree to make possible its free and full development. For the trees of other countries only space has been found for a single individual of each. Hardy shrubs are arranged in parallel beds on the only piece of level ground in the Arboretum near the Forest Hills entrance. This arrangement has been adopted that students who want to see and compare the species of a genus of hardy shrubs can do so easily and in a short time. Everywhere else in the arboretum the attempt has been made to so group the trees and shrubs that the natural features of the place may be preserved, and that, although a person going along the drives can see close to the road a representative of every genus of trees in the Arboretum, he can do so without being unpleasantly impressed with the idea that he is in a systematically arranged botanical garden. A visitor, however, who sees only what can be seen from the drives gets little idea of this museum and its collections which must be studied from the grass-covered paths which lead the student to all the groups and to the principal points of interest and beauty.

More important for the increase of knowledge than the cultivation and convenient arrangement of living plants is the work which is carried on in the laboratories of the Arboretum, for comparatively few persons can study and enjoy these growing plants; but from the laboratories material and information reach far beyond the boundaries of the United States. There are two departments of these laboratories, first the nurseries and second the herbarium and library. In

the nurseries have been raised nearly all the trees and shrubs which now form the outdoor museum, and from them hundreds of thousands of rare plants, or plants entirely new to cultivation, have been sent out in exchange for other plants, to be tested in almost every civilized country of the world. In these nurseries, too, have been produced by hybridization a few plants of considerable value. The Arboretum has been fortunate that its nurseries from their beginning until a year ago were managed by Jackson Dawson, a man of genius who gave to the Arboretum his enthusiasm, his imagination, and unsurpassed knowledge of plants and their propagation. The work of Jackson Dawson was one of the principal factors in the successful creation of the Arboretum and in extending its usefulness, and in its success he found a happiness which is not given to many men.

In the library and herbarium the material gathered by agents of the Arboretum is studied, and in its library have been prepared the books through which the information about trees collected by the Arboretum has reached the public. The library commenced in 1873, now contains 31,000 bound volumes and 8,000 pamphlets, and on its shelves are to be found all the principal books in all languages relating in any way to trees, their uses and cultivation. The herbarium, the foundation of which was laid by the agents of the United



One of the most noticeable trees on the driveway is *Cercidiphyllum japonicum* which is the largest tree in Japan. Thrives in North Eastern America

States Census of 1880, has grown and is growing steadily. It is rich in the ligneous plants of North America, and of China and Japan. Those from other countries are fairly well represented, and it is the purpose of those who now administer the Arboretum that this herbarium shall eventually provide material for the critical studies, begun in North America and continued in Japan and China, of the trees of all other countries.

Only a few years have been necessary to make the Arboretum what it is to-day, and if we pass in imagination down the centuries during which it is to occupy the ground in Boston it now occupies, it will not be difficult, judging the future by the accomplishment of a few years, to picture an establishment able to increase human knowledge and human happiness in all parts of the world.

The foundations for such an establishment have already been laid. The position of the Arboretum as a scientific station is now recognized. It has many friends who believe in its value, and it has attracted and retained for many years a staff devoted to its interests; and nothing now but insufficient space in which to expand, and insufficient money to make possible the work the centuries will impose on it, can prevent the realization of the dreams of those who have found their life's work in preparing the way for a great scientific and popular establishment of far-reaching influence.

Electricity For Heating Frames W. C. McCOLLOM

A PRACTICAL AND ECONOMICAL METHOD WHERE NO REGULAR HEATING PLANT EXISTS.—POSITIVE FACTS IN VIEW OF RISING COSTS OF NATURAL HEATING MATERIAL

NEVER heard of such a thing!" Probably not. I don't even know that any one has actually done it; but in view of the increasing difficulty of obtaining natural heating material, stable manure, the scheme may not be so impractical after all. Let's look at the facts. The price of electricity is tending downward while the price of stable manure is rapidly increasing; and in many localities it can hardly be procured under any circumstances. Then why not use electricity for heating hot beds since its cost is not prohibitive?

The great advantage in using electricity is that we can instantly regulate the heat of the bed according to the weather. At four o'clock

it is mild; at nine it is freezing briskly. Accordingly we turn on our switch and the hidden forces of our cleanest and most satisfactory of all heating mediums are set in operation giving us the required degree of heat necessary for the development of the plants in the bed. Just think of it! No manure to cart away; no digging up and littering of the entire surroundings nor the disadvantage of having heat when it is not wanted.

Heating frames by electricity is really a very simple thing. All one has to do is to attach a supply cable of sufficient size from the point of intersection with the main feed cable to heaters which are placed in the frames at equal distances from each other. These heaters which

are made of castings of metals or a composition of metals that offer resistance enough to the electric current to generate heat are not more than one half inch thick and have small lugs at the corners to keep them from coming in contact with the supporting rear wall to which they are attached about six inches above the ground line inside the frame.

The Question of Cost

BASING our calculation of cost on a frame six feet wide and fifty feet long with one foot of exposed wall in front and two feet in the rear, the customary way of building frames, we get a total of \$80.00 divided as follows: Three heaters of the gridiron type,

ten by fifteen inches and of four hundred and forty watt capacity, \$15.00 each, \$45.00; one hundred feet of feed cable at 25c. per foot, \$25.00; and \$10.00 for the installation of the plant. The cost would be considerably lessened, proportionately, on larger sized frames and somewhat increased on smaller units.

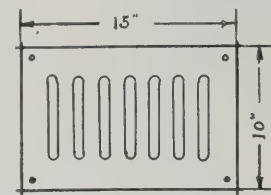
To raise the temperature fifty degrees in a frame of the size mentioned above will require about one hundred and ten volts or thirteen hundred and twenty watts, a consumption of approximately one and one third kilowatts per hour. The cost per kilowatt varies to such an extent that it will be necessary to strike an average of say ten cents which is rather high but will do for the purpose of comparison. Using the heat from six o'clock in the evening until six o'clock the following morning will consume sixteen kilowatts at a cost of \$1.60. If the amount of heat required is less than fifty degrees the cost will be proportionately lower.

Let us assume that it will be necessary to raise the temperature the maximum, or 50° for twenty nights during the time the frames are in service, or the current consumption would be the same for a 35° temperature for thirty nights. In either case the cost will be about the same, \$32.00 for electric current for the season. To be on the safe side let us assume that we will need the heat for twice the periods mentioned above. The cost for the season will be \$64.00 for operating expenses—but that is an extravagant margin, and would not be reached.

Taking this high figure, however, compare the cost of electricity with the expense of manure as the heating medium for the hotbed. In order to obtain the amount of heat necessary there should be three feet of manure in the pit or a total of thirty-four cubic yards. At \$1.50 per cubic yard, a very low estimate, it will cost \$51.00 to fill the frame with manure. After the heat is expended the manure will have to be carted away and this will be an additional expense. Keeping in mind the fact that manure is getting more and more expensive and electricity cheaper and cheaper there is no great difference in the cost of the two mediums.

There is no doubt as to the practicability

of making use of electricity to heat hotbeds, and in fact, it is more desirable than stable manure. With hotbeds heated by manure we often find soft, spindly plants, caused by intense heat when it is not required and it is a well-known fact that more plants are destroyed in a hotbed by too much heat than

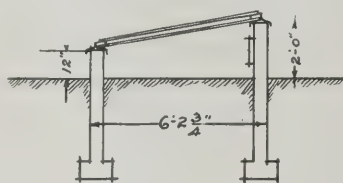


FRONT ELEVATION

GRIDIRON
SCALE $\frac{1}{2}'' = 1'-0''$

Detail of electric heater installation for frames

are killed by cold. In using electricity as the heating medium the temperature can be regulated according to conditions; the three heaters referred to above will distribute the heat equally and by increasing or decreasing the power no one unit is entirely cut out but the heating power in each



SECTION "A-B"

Section of frame at the line AB below

is simply increased or decreased as desired.

Old Time Disadvantages

ONE of the chief disadvantages of the old fashioned hotbed is the excessively moisture laden atmosphere caused by the decomposition of the manure. For this decomposition the manure must contain moisture and this moisture must evaporate. There is only one way that it can find its way to the air and this is through the hotbed. This means that the moisture is continually rising and carrying with it the fumes of ammonia which are not directly advantageous to the growth of the plants. When the frames are closed the glass is at once coated with moisture which excludes the light and causes the plants to get soft and spindly.

Other Plans That Economize

OFTEN it is desirable to use frames in the fall for the storage of certain plants until they are used or disposed of in some other manner and here again the electrically heated frame will serve as we have no heat to apply, no preparations to make. Simply a turn of a switch and the frame is ready!

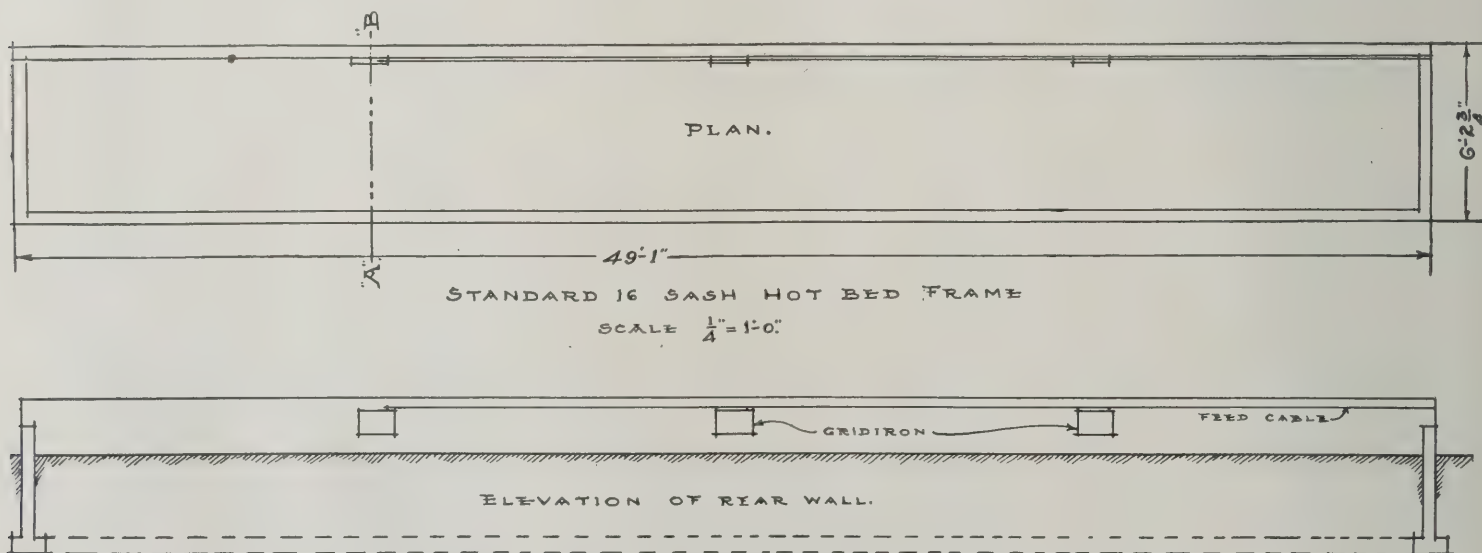
There is no danger attached to the electrically heated frame. The heat is rarely used when any one is working around the frame and even then it would be almost impossible to get at a point where one might get a serious shock although one might get a burn by coming in contact with the heaters. In order to avoid this danger a cheap guard of some kind can be placed over them.

A frame properly fitted out should last a life time. No particular care is necessary and there are no expensive items of up keep. The cost of installation plus the cost of operation will doubtless deter many from trying the experiment but I venture to prophesy that eventually the electrically heated hotbed will be popular, especially on places that generate their own current. These places always have a surplus of power at night when the heat in a hotbed is most required.

When hotbeds can be located near the house, garage or greenhouse electric heating would not be economical as in such a case it would be far more practical to install a small main from the heating unit in the building. It is only where the frames are more or less isolated that electricity is to be recommended.

Using Fresh Vegetables Wisely

THE housewife's desire to manifest her patriotism by food conservation may be expressed in her willingness to revise, not alone her meal plans but her culinary practices as well. Accordingly she will cook all vegetables in the skins, regardless of how they may be finally prepared for the table. Steaming will in large measure replace boiling when she realizes that the loss of mineral salts by boiling is from three to five times as great as when vegetables are cooked by steaming. She will not be tempted to live out of the tin can because of its convenience. Rather will she regard the canned vegetables as a supplementary or emergency form. It may be called to mind that out of about thirty common vegetables twenty are stored in the fresh state.



Plans for equipment of frames for heating by electricity. It is a convenient method where no regular heating plant exists

Little Chat on Greenhouse Heating

J. N. MacARTHUR

Heating Engineer

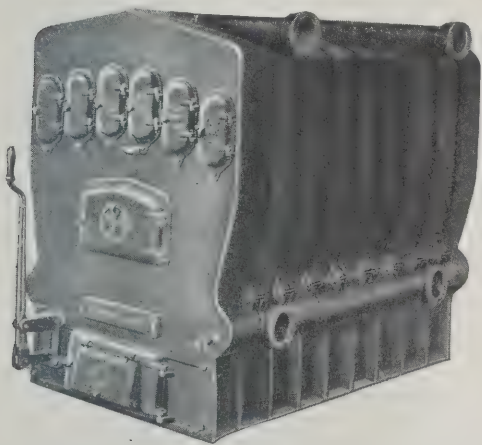
NEED FOR HIGHEST EFFICIENCY IN HEAT PRODUCTION—HOW THE GREENHOUSE BOILER BECAME SPECIALIZED AND TYPES THAT FIT SPECIAL PURPOSES

SOMEbody, somehow, somewhere, came to a hasty conclusion about greenhouse heating; and then proceeded to spread it broadcast as a conclusive conclusion. The conclusion was that the heating of a greenhouse was a most vexatious problem; one as yet to be satisfactorily solved. In that word "satisfactory" it turns out was mainly the question of coal burned.

Evidently, it loomed up as a great bugaboo, quite as the question of gasoline used to, with automobile owners. But what boots it, if gasoline does cost 30 cents a gallon instead of 20, if with improved engines and carbureters, you get an equivalent increase in power and mileage?

Whether it is a question of greenhouse coal, or an auto's gasoline, it all simmers right down to the basis of getting proportionate returns for your expenditures.

There is a man up at Port Chester, N. Y., who has a greenhouse 18 by 50 feet, who grows on the side bench enough spring bedding



The modern square sectional type of greenhouse boiler. It is easy to install, to repair, and to operate. And easy on coal. All clean-out doors, dampers and other operating parts are entirely on the front.

plants that he sells to his neighbors to entirely pay for the coal he burns.

But like the auto again, the genuine 100 per cent. pleasure you get out of it, is so far and away ahead of the money you put in it, that it's overshadowed.

But you can burn a needless amount of coal, just like you can use an unnecessary amount of gasoline. The boiler might be termed the carbureter of the heating system. Just as a special type of carbureter must be devised for each type of engine, so should a greenhouse be heated by a specially designed greenhouse boiler.

Next to all out-doors, and church lobbies, the greenhouse is the most difficult thing to heat. When you think of that thin film of glass, not more than an eighth of an inch thick, which is the only thing between the flowers inside and the zero weather outside, you wonder it can be heated at all.

Talk, for instance, with the owner of those huge commercial Rose houses, covering, not so many square feet, but acres; and you will be surprised to learn the small amount of coal required to heat them, compared with other buildings. Due allowance, of course, being made for the great difference in structural material.

Now consider the fact that in residence

heating the pipes are run vertically. This gives every advantage of the force of gravity to insure the return of the water to the boiler, and so make the circulation both rapid and free from air pockets.

Now compare greenhouse heating, with its pipes running horizontally under the benches, and you at once see why it is that a boiler that may economically heat your house, is not successful for your glass enclosed garden.

In reverse, however, you at once appreciate that a boiler which is economical for greenhouse heating, is exceptionally so for all other purposes too.

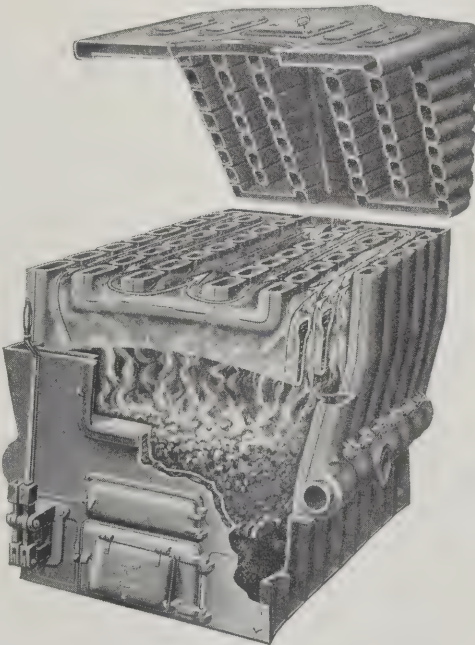
Contrary to your impression, perhaps the evolution of the greenhouse boiler reads quite like a fairy tale.

Like every worth while thing, its inception started with one man. In this case, it was an enthusiastic lover of flowers, an Englishman who came to this country, following the lure of larger opportunity.

In those days, more than 60 years ago, before the day of steam or hot water adaptation, greenhouses were heated in what now seems a ridiculous way. A sort of stove or furnace was bricked in at one end of the greenhouse and the chimney or flue carried along under the centre of the house to the other end; where it ended in the chimney proper. This flue was made of brick and tile. The heat radiating from it warmed the house excessively at one end, and in opposite proportion at the other. Incidentally, it often leaked gas, killing the plants.

Of course, such a heating method devoured coal most discouragingly.

Our English flower lover, who was also a heating engineer, seeing his opportunity, designed a sort of half furnace, half boiler, by putting a water jacket around part of it. From it, he ran hot water pipes down one side of the house, and the brick flue down the other. This gave a more even distribution of the heat,



Cutting the top off the square sectional boiler like you would a boiled egg and cracking off some of the side makes its construction clear. The fire comes into the upper story through the side flues, between each section. Then it starts back and forth on its three time passage or fire travel. It is this long fire travel that has much to do with its short coal bill. See the illustration of a single section

and also placed it at the sides of the house, where it was most needed.

But still it was at best a one-sided proposition, all being in favor of the hot water side.



The latest improved type of round sectional boilers used for heating greenhouses of moderate size. It has all the economy advantages of its brother, the square sectional

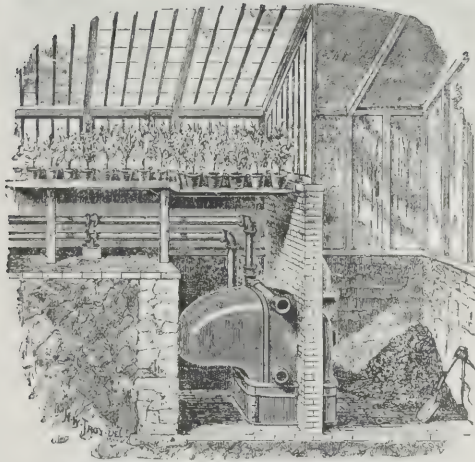
So next he designed a regular, full-fledged boiler in which instead of having the fire and hot gases simply heat the water that was only directly over the fire, as it does in a tea-kettle, he made a water jacket hump or V-shaped extension on the back. Back and forth through this water-jacketed extension, the flames, hot gases, and smoke had to pass before they could go out from the smoke box and up the chimney.

This so increased the efficiency that with the same coal, three houses of the same size could be heated instead of one. Pipes were used on both sides of the house and the chimney flue carried directly from the boiler through the roof, like any rightly behaved chimney.

For the first time it was possible to heat all parts of the house uniformly and, by putting valves on the pipes, have full control of the heat distribution.

Not to this very day has there been designed a boiler that surpasses this hump boiler for economy.

But as houses grew larger, it became a problem to cast the big humped boilers needed. It was also difficult because of their size, to handle them when installing. And so it was that one of the pioneers in greenhouse building determined to design a boiler that had all the advantages of the hump one and none of its limitations.



Greenhouse of M. Pernet, the well known French rosarian. Heated in the old-time way with a brick flue running under the centre bench from the furnace at one end, to the wooden chimney at the other

Taking the sectional book-case as an inspiration, he made a sectional boiler of two designs. One, square shaped, in which the sections were placed side by side. The other was round, with the sections put one on top of the other.

In them, he combined the twice back and forth passing of the gases and smoke, as in the hump boiler; and then added another passage or flue, making a three times back and forth. As a result, so thoroughly was the heat extracted by the water in the boiler, that the smoke pipe was cool enough to put your hand on it.

But still more improvements were to come. The part directly over the fire, corresponding to the bottom of the tea-kettle, was made in corrugations or loops, each section forming a part of the loop. This gave still more economy, because it gave more heating surface for the flames to directly heat.

To prove to yourself how this is, just lay a string on the table in loops, like in the sketch alongside. Say the distance across all the loops measures two inches. Now pull the string out straight and it measures close to six inches.

If tea-kettle bottoms were made in corrugations like a greenhouse boiler, they would boil in a third less time. Strange, isn't it, that someone doesn't make them that way?

But to get back to the square sectional boiler, it really has two stories. The lower one contains the fire; in the upper one, are the flues through which the hot gases pass back and forth between their water-surrounded walls.

Now consider that the top, sides, front and back of the lower story are water surrounded, as well as every one of the passages in the upper one; and you can see that this boiler is like a big sponge, greedily drinking up the heat and sending it with great circulating

force, into the greenhouse, in the form of hot water or steam.

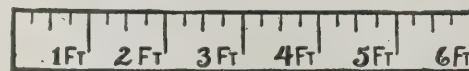
Perhaps this is now as good a place as any to talk about "hold-ups"—the kind that in boilers mean a slumber fire. The kind that holds up its end when there is little to do; and is always ready to do more, when more is to be done. Which statement needs explaining.

We have reference to the way this boiler's grates shake part at a time, so that you can in mild weather put ashes on part of them, and run the fire on the other part. It's just like having a little boiler inside the big one. It is decidedly more economically and easily managed than the big fire, which—in your endeavor to keep it low enough, frequently goes out?

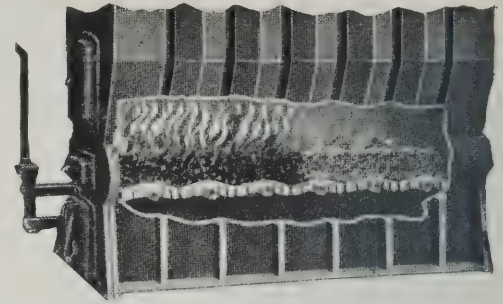
And now a word more in general about sectional boilers. They are easy to handle and set up. The sections will go through practically any door and down any ordinary cellar stairs. In case anything happens to any of the sections, only that one section need be replaced. As you enlarge your house, simply add more sections to the boiler just as you would add more sections to a book-case.

Such boilers are made for either steam or hot water, but by far the greater number of greenhouses are hot water heated. It is a more equable heat than steam. It has none of its intensity, none of its being either all on or all off, and so requiring much attention to preserve the uniform temperature so essential for greenhouse success.

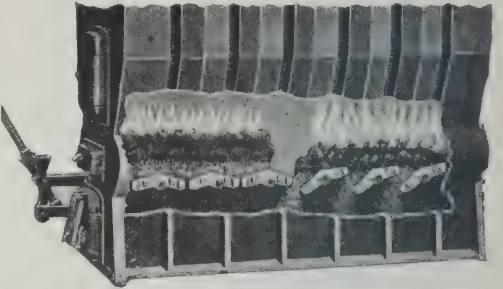
But let me caution you to make sure your boiler and heating pipes are rightly proportioned, both in relation to each other and the requirements of the house. To heat a greenhouse of ordinary sound construction—that is, tightly glazed with double-thick glass—to a temperature of 55 to 60 degrees at night, when the mercury outside is at zero, you must have



These sketches, go to prove that a kettle with a corrugated or looped bottom has the same quick heating space that a flat bottomed one has, three times the width. On this fact is based the use of corrugations in the fire box top of greenhouse boilers



In early fall or late spring, when only a little fire is needed, just bank the back half of the grates with ashes and run a fire on the front half. The grates shaking in two parts, makes this possible



The grates on the square sectional shake half at a time, which has two advantages. Shake easier, and you can stir up half the fire and let the other half slumber

one square foot of hot water radiation pipes for every three square feet of exposed glass and its equivalent.

No matter how fine a greenhouse or conservatory you may have, a "greenhouse boiler" is vital to its success. So do not experiment with ordinary furnaces; it costs too much.

A Neat Stake

MY only objection to growing Lilies, Gladiolus, and Dahlias is that they usually need staking and I object to the conspicuous way in which the stakes show. Of course, I wouldn't be without these grand flowers even if I had to put up with the objectionable stakes. In the past I have used the bamboo stakes, that can be bought at most of the seed stores, and while they have some advantages over the usual rough stake, yet they failed to exactly suit. The past season I gave the subject some thought and finally devised a stake that seemed to answer my purpose, at least. The stakes of course, are of different lengths to suit the heights of the different flowers and the size of the stake will depend on the length. For a five-foot stake I found three quarters of an inch square about right. At some near-by saw-mill, waste material can usually be found that will answer the purpose first rate and may be had for very little money and sometimes for only the trouble of carrying them away. I next bore small holes beginning near the top and about eight or ten inches apart, down to about the middle of the stake. After sharpening the bottom end so it may be driven into the ground easily. I next paint the entire stake green and lay away to dry. Instead of using string to tie the plants to the stake I use green raffia, being more inconspicuous than the former. I at one time used tacks or small nails to keep the raffia from slipping down but found them more or less in the way and they were continually catching on different things. The holes have no bad points. If the stakes are stored under cover during winter and occasionally re-painted there is no reason why they won't last for a good many seasons.

Toledo, Ohio.

WALTER J. WAIT.

The Greenhouse That Isn't Heated

W. N. CRAIG
Brookline, Mass.

MAY BE EXPENSIVE ECONOMY—PROFITABLE CROPS THAT CAN BE GROWN UNDER GLASS WITHOUT FUEL—HELPING THE FOOD SITUATION

COAL scarcity, to say nothing of the possible price, is a present menace to the gardener this year. It is a big problem what to do with the greenhouse. Shall it be operated regardless of cost? Can it be started and the risk taken of not being able to get an adequate supply of fuel? But withal the case is not so alarming as it was only a few years ago. During that period very few greenhouses actually were closed down in the winter and where coal was not available cord wood was used for many months to keep frames running.

As a plain matter of practical common sense the closing down of the greenhouse should be looked at as a very serious solution of the problem. Closing down has many and costly disadvantages. A greenhouse kept in operation and kept heated during the winter comes through the cold weather in better condition than one that is left alone, unless it is elaborately protected by wire screens or board shutters laid over the roof. In the neglected house frost within will heave the brick piers supporting the pipes which ordinarily are put up with very little foundation. The heaving tends to throw pipes out of plumb and to "start" the joints. The resultant leaks are often costly to stop.

In the event of the greenhouse being closed for the winter it is advisable to protect the piers with a covering of straw, hay, or dry leaves; and indeed to lay this covering over the entire floor of the greenhouse. It is, of course, understood that all water is drained from heating pipes and boiler and that any cold water connections be cut off where danger of freezing exists. This work should be done during November. After March 1st the greenhouse should have a little artificial heat in order to bring on spring crops. Not much fuel would be needed during the day, unless

the weather is unusually cold, but some warmth should be kept in the pipes all night. By using a little fire heat then very much earlier crops will be assured.

NOT much can be had in the way of growing crops in an unheated greenhouse during December, January, and February. Yet we want to increase our food production as much as possible during the coming winter, and an unheated house will assist in this effort. If the house contains benches with sides these should be filled at once with a compost of well rotted manure one part, and rotted pasture loam or good garden loam three parts. On part of this sow rows of prickly spinach as soon as possible. Let the rows be 10 inches apart. This will soon germinate and will easily withstand the winter; give the surface a mulch of dry leaves after the middle of December.

You probably have lettuces in the garden which have not yet attained any great size; dig them up carefully and plant in a bench 8 x 8 inches apart. They will continue to grow for some time. Give them also a good mulch of leaves and they will pull through the winter unless it is unusually severe.

Are there any cauliflowers that are not headed up? Lift them carefully, soak well in water, tie the leaves together over the top, which will prevent them breaking and also protect the "flowers" and keep them white. Plant them in the benches. Dandelions make excellent greens in late winter. Secure a number of strong roots now and plant in the benches.

WHEN the power of the sun is increasing perceptibly, about middle of January, it will be safe to make sowings of garden peas, radishes, lettuces, and round spinach. Don't

worry about them because the weather is cold, for even if the soil on the bench freezes they will not be harmed, especially if a dry mulch of some kind be given. A month later you can sow more lettuces, beets, or spinach if the needed bench space is available.

A few luxury vegetables are easily to be had. Some old asparagus roots taken inside will yield a few early bunches. The roots can be dug now carefully and planted below the benches of the greenhouse covering the roots with two or three inches of soil.

If mushrooms are liked, a bed can be made below one of the benches. It will not produce through the winter but will give an abundant crop as the weather gets warmer. It will do the bed no harm even if it freezes solid. Use pure culture spawn, and a mixture of fresh horse manure three parts and loam one part. Allow rank heat to subside before making up the bed. Spawn when heat in the bed declines to 90 degrees, using portions of spawn as large as an English walnut and cover these two inches deep, 12 inches apart each way. Ten days after spawning spread two inches of loam over the surface and beat it firmly, then cover with hay and let alone. Manure just moist enough so that it can be squeezed together without water exuding is in the right stage. Pound this nine inches deep and the firmer it is made, the longer heat will be maintained and the better the crop.*

FLOWERS are wanted early? Well then, sow Sweet Peas, Bachelor's Buttons, Mignonette and Marigold at the end of January. Dutch bulbs such as Tulips, Hyacinths, Narcissus, etc., if carried over in a cold cellar can also be brought into the unheated greenhouse late in February, at which time also it will be perfectly safe to start Hydrangeas, Lilacs, Rambler Roses, Deutzias, and other dormant deciduous shrubs or climbers.



A cool, or even cold, house can be used to grow the hardier vegetables earlier than the outdoor garden. Mushrooms may be grown under the bench

CHANGING THE BASE OF OPERATIONS FROM THE OPEN TO THE FRAMES AND THE GREENHOUSE FOR WINTER PRODUCTION—WHY DRAINAGE IS SO IMPORTANT INDOORS

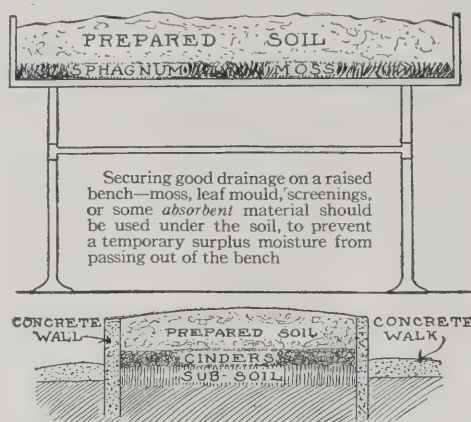
EVERY good gardener, is quite naturally determined to have a better garden next year. The demand for good vegetable plants of all kinds will be even greater next spring than it was last, and any surplus of such plants which the foresighted gardener may have is sure to find a ready sale at good prices.

Not too Late to Begin Now

WHILE the gardener who is so fortunate as to already possess some frames, or a small greenhouse, has or *should* have winter crops already started, nevertheless, it is not too late for the new gardener to have a winter "war garden" as well as making sure of a supply of plants, both vegetables and flowers, for next spring's garden and flower beds, provided prompt action is taken. If a "ready made" frame, or a small greenhouse is ordered now, and the soil to go into them is prepared while you are waiting for it to arrive, you can still get two or three crops of winter vegetables before the plants to be grown for setting out in the spring will require much space. The latter are started in February or early March; but for six weeks or so, before they are ready to transplant, will occupy very little room. So you have practically all the space available in frames or greenhouse to use for a winter garden until April.

While it is no part of the present purpose to describe types of frames and greenhouses

the gardener. If he does not water his plants himself, they will grow thirsty. If he does not attend to giving fresh air, they will soon fall a



Method of providing thorough drainage for solid greenhouse bed built on the ground

prey to disease. On the other hand, however, growing conditions are under his control and not subject to the vagaries of the weather.

Things that Need Attention

TOO often, the new gardener under glass looks for the cause of his troubles in the supposed wrong selection of varieties, or in having given a few degrees too high or too low a temperature, when in reality, even with perfect seed and growing conditions, he would have met failure because of mistakes made at the very beginning of his winter gardening operations. Pay heed therefore, to the controlling factors.

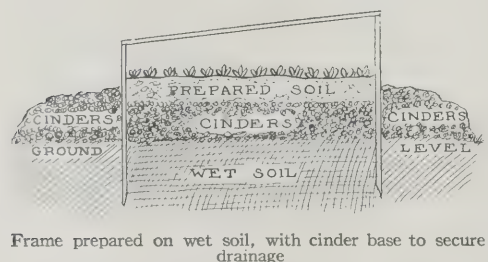
The first essential is drainage. If the soil be either too wet or too dry to furnish the proper conditions of growth, little progress can be made, and it is absolutely impossible for the plants to make progress, no matter what pains have been taken with all the other factors influencing their growth. Out of doors, drainage, even under unfavorable conditions, will, to some extent, take care of itself. Surplus water, if it cannot find its way down through the soil, will tend to flow off over the surface or will be decreased rapidly through evaporation. In the frame or the greenhouse, however, it is wholly subject to artificial control. Evaporation takes place very slowly, and if precautions are not taken the soil may remain in a soggy, water-logged condition, fatal to healthy growth, for days or even weeks at a time. And, unless he has been forewarned, the grower may not suspect what the trouble is!

The first step in making sure of satisfactory drainage is to provide an adequate means of escape for any surplus moisture before the soil is put into frames, benches or solid beds. When frames, coldframes or hotbeds are built on soil which has a naturally porous sub-soil, giving good drainage, no further attention will be required than to see that the soil of the frame is thoroughly spaded or forked up and that no outside surface water can find its way into the frames, in the case of heavy rain or

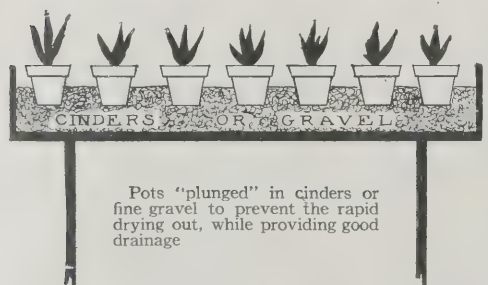
melting snow. The frame should be made in such a manner, that when the prepared soil is put in it, the level will be above the soil level outside the frame; or else protected from water outside by being carefully banked up. If, however, the ground upon which the frames must be constructed is low, a layer of cinders, several inches thick, should be placed in the bottom of the frame. On very low soil that is sure to be wet in winter or in spring, a long, low mound of cinders can be made and the frames built on top of this. Where the frame has to be built on a hard, impervious sub-soil, it can be dug out sloping toward the front of the frame, and a line of ordinary, loose jointed tile laid along the front, with a pitch to one end, to carry off the moisture. All these methods are illustrated in the accompanying drawings.

Drainage in the greenhouse is even more important than that in the frames. Here one is likely to encounter trouble in one of two extremes—the solid bed, usually, being so constructed that without the greatest care in watering it will be too wet; while the raised benches, on the other hand, are just as likely to dry out too rapidly and will therefore require frequent heavy waterings, and so suffer from being alternately too wet and too dry.

What has been said in connection with procuring good drainage in the frames applies, with slight modification, to the solid bed in the

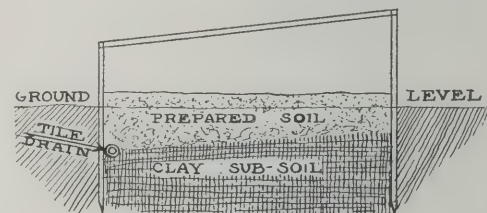


Frame prepared on wet soil, with cinder base to secure drainage

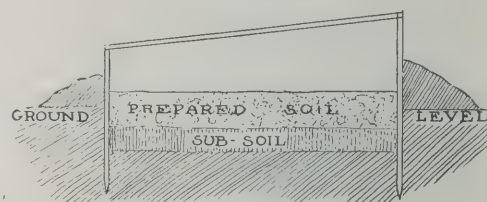


which may now be had "ready made" at reasonable figures; nevertheless, it will be in order to assert now that they are entirely practical. Note may be made in passing of the heat-conserving possibility of "double glazing" for both sash and small greenhouses. In double glazed work, there is a thin layer of air between the two sheets of glass which acts as a non-conductor, keeping the frames or house as warm as though there was a mat over it, and, at the same time admitting sunlight.

The first thing for the beginner at winter gardening to realize is that it is an undertaking distinctly different from gardening out-of-doors. While the same general principles of fertilizers, plant sanitation, etc., apply, yet the conditions are not at all the same. The first and most important difference is, that in gardening under glass, practically everything is "up to



Frame on clay sub-soil with slight pitch to end to provide drainage



Frame prepared on ordinary, level ground

greenhouse. Unless drainage conditions are very good, it will pay to put in cinders or other drainage material before filling in the bed with the planting soil, even if the latter contains a large proportion of manure. It is much safer to err on the side of too good drainage. A too light watering can readily be supplemented by another; but a heavy watering, with poor drainage, may cause damage that cannot be undone for days or even weeks.

One of the secrets of having small plants in pots thrive and grow rapidly, is perfect drainage—this applies with equal force to plants that are in a semi-dormant condition and, making little growth, require little water. Pots set on a bare, board bench are apt to get dried out entirely, or baked. If, however, the bench is filled several inches deep with small cinders or sifted ashes, and the pots are sunk into them half way, or up to the rim, it will be easier to keep them moist without having them too wet. They will also not be so likely to be



knocked over in watering, weeding, or in an accidental gust of wind.

Plant Foods for the Winter Garden

NEXT to drainage, both in importance, and in the actual operation of getting ready to plant, comes the soil. While a very rich good garden loam will answer the purpose, it is much better to prepare a special soil for winter use. To make this, procure from an old pasture or roadside, where the grass appears to have grown luxuriantly, pieces of sod several inches thick. Cut this up fine with a spade or an edger and pass it through a coarse screen; this gives a soil full of natural humus. If you can get sods which have lain long enough to rot until they will pass through a coarse screen, so much the better. If neither of these can be obtained, use clean, garden soil. Secondly, obtain some fine and very well rotted manure—if possible, containing a good percentage of cow manure. The older and more thoroughly decomposed this is, the better. Thoroughly mix together the soil and manure in the proportions of one of manure to two of soil, adding enough coarse sand so that the resultant mixture will be thoroughly "cut" by the particles of sand and so friable that it will fall apart readily, even when fairly moist, after being squeezed in the hand. If manure cannot be obtained, commercial humus, or leaf mould from the woods may be used in its place; and a pint or so of fine ground bone added for each bushel of soil. The whole must now be thoroughly mixed, preferably a week or ten days before wanted for use.

A soil thus prepared will serve as the foundation for practically all work under glass. As you become familiar with the requirements of the individual plants, and attempt to grow a larger list, you may want heavier soil for some things and lighter for others, but, if results with soil as thus prepared above are not generally satisfactory, you can look elsewhere than to the soil as the source of your trouble.

Preparation for Planting

THE next step is getting ready for planting. The soil in raised benches must be at least four inches deep, and the frames or solid beds preferably six or eight inches. Even with this depth of soil, the individual plant has much less space than it would have in the open ground. If manure has been used, the soil will be fairly rich. But, in addition to this, after the soil has been put in place, a good dressing of wood



Thoroughly mixing the soil ingredients before putting into the benches is quite important. Incorporate fertilizer at this time

ashes sprinkled over the surface, and raked in, will help to sweeten the soil and provide potash; a light dressing of bone dust, if none has been used in making the mixture, should also be raked in. If the soil is at all dry, it should be wet down thoroughly, soaked through and through—so it will have a chance to dry out sufficiently before the seeds or plants are put in place.

Throughout the season, the plants both in beds and benches and pots, while making active growth, will be benefited by a further application of plant food in the form of a light dressing of bone dust or tankage or nitrate of soda (the latter is most safely applied in solution, a heaping tablespoonful being used to a gallon or so of water), applied when the soil is fairly moist.

Fresh Air and Plant Health

THE one thing which the beginner is pretty sure to neglect is giving plants indoors as much fresh air as they need. A safe and simple rule is as follows: *Give all fresh air possible, while maintaining the minimum of temperature.*

This does not mean that the ventilator should be kept open or the sash raised during night and day as long as the plants do not freeze. The winter gardener should aim at giving his plants fresh air every day, preferably in the morning, so that the air in the frames or house will have a chance to warm up again from the sun before nightfall. On very stormy days, especially with sash, fresh air cannot always be given. Any air draughts that will directly hit the plants must be avoided. The frames or ventilators can be opened in such a way that the wind will not blow directly into them, i. e. on the lee

side. It is better to have a moderate opening for several hours rather than to open up wide for a few minutes to "change the air," resulting in a sudden fall of temperature, followed by a quick rise.

Keeping the Plants Healthy

IN ADDITION to giving an abundance of fresh air and to keeping the soil watered frequently enough so that it is evenly moist, without ever getting absolutely dried out or wet enough to be soggy, the surface will, of course, be thoroughly stirred or cultivated frequently, both to admit air and to prevent the growth of weeds. Any plants grown in rows such as radishes or carrots, should be "thinned" even more promptly and carefully under glass than out of doors, because the

conditions are more favorable to the development of disease or of weak growing plants.

Fumigate regularly, every week, or two weeks at the most, with tobacco dust or tobacco paper.

If you will take the slight trouble of doing this (and it takes only a few minutes each time) you will have a practically sure preventive against aphids and sucking insects of all kinds. If, by any chance, any of them do appear, they can be sprayed with a nicotine extract (aphine or Black Leaf 40), and fumigation given.

If care is taken to do the watering on bright mornings, so there will be much less likelihood of danger from "rot" of various kinds. All diseased leaves, dead plants, refuse and so forth will of course be scrupulously cleared up and burned at once.



Does double glazing "deliver the goods?" Well here are two lettuces grown under same frame conditions, but that on the right of picture was from double sash

WHERE FRUITS AND VEGETABLES CAN REPLACE OTHER FOODS. COMBINATIONS FOR BALANCED DIETARIES

OF THE VAST quantities of perishable food stuff raised in the war garden efforts of the year ample supplies have been put into storage. The present problem is selecting and combining these foods that there may be brought about the most efficient and economic use of the products of the garden during winter. Fundamental to the attainment of that object is an understanding of the nature of fruits and vegetables and of the rôle they play in the diet.

As a first step study of the vital needs of the family to discover how under the present condition of limited food supply and unlimited prices, they may best be met, great knowledge is not necessary. If, then, the housewife can supplement that knowledge with skill in the cookery of fruits and vegetables, originality in combination and in serving, and in the observation of a few general rules or guides to practice, the problem of the three square meals a day will cease to be the proverbial bugbear to the household that has used its garden area wisely.

The study of food values and of food functions involves the use of a few unfamiliar terms, but those terms may be quite as readily comprehended as Chrysanthemum, Gladiolus, or Dahlia. We have already come to use with considerable freedom the terms protein, carbohydrates, and fats. The first named food principle, it will be remembered, is the tissue-building part of foods, that part which is found in large proportion in lean meat, eggs, milk, cheese, and in beans and peas. The carbohydrate group includes all foods rich in starch and sugar, and the best known representatives are potatoes, cereals, and sugars. Such foods we think of as energy yielders, or, in other words, as producers of heat and activity. Only in comparatively recent years has it come to be generally understood that very many of the fruits and vegetables, low in protein and carbohydrates and formerly used because of freshness and palatability, have large value as body regulating substances.

What Fruits and Vegetables Can Do

THE special function served by fruits and vegetables is fourfold. Because of its bulky residue it gives a laxative tendency. And again, because of bulkiness, fruits and vegetables are the more satisfying to the appetite. Within the last half dozen years this group of foods has come to be known as an important source of the very minute quantities of certain food accessories which are regarded as highly essential to growth. To such food accessories has been given the name *vitamines*. And it is significant that fresh fruits and fresh vegetables are more advantageous sources of vitamins than those same products preserved by canning or drying. The organic acids found in fruits and vegetables give to them pleasing flavors, exert a laxative effect and serve other useful purposes. The fourth function is that of supplying to the body the essential mineral salts. The mineral constituents of greatest importance are iron, calcium, phosphorus, potassium, sodium, sulphur, and chlorine. The average dietary is often lacking in these food constituents and, of the elements named, the first three cannot be safely left to chance. This discrepancy may be accounted for in the fact that the food selected has not included generous

amounts of eggs, legumes, whole cereals, fresh fruits, and fresh vegetables. *If each day's ration contained two medium sized potatoes, a serving of some other vegetable, and the equivalent of a medium sized apple in fresh fruit, the needs for mineral matter and of growth promoting substances other than protein would probably be supplied.* Special care should be exercised then to make sure that the dietary includes a generous supply of foods in which iron, phosphorus, and calcium do occur. Foods rich in iron are egg yolk, lean meat, spinach, fruits, and cereal grains. Generous use of milk, legumes, celery, cabbage, and cereals will insure an adequate supply of calcium salts to the body. Phosphorus contained in egg is considered to be more completely utilized than that derived from any other source; but beans, wheat, and oats also serve to supply that element. This is not to say that the foods named as the desirable source of supply of one mineral constituent do not also supply other mineral constituents. From the foregoing statements it is apparent that the group of vegetables known as legumes serve as a source of each of the three very important mineral constituents. Legumes include beans, peas, lentils, and soy-beans.

The Potato Substitute

AN UNDERSTANDING of the nature and amount of mineral constituents contained in the different food stuffs will enable one to correctly provide "substitutes" for the staple food products for which the present demand exceeds the supply. A case in point is the need for potato substitutes. Rice and other cereals and cereal preparations such as macaroni have come to be referred to as "the potato substitutes." In so far as we are concerned with the starch content, the foods named may be so regarded. Their inadequacy in other respects should be as well understood. In the digestion of foods there are set free alkaline salts known as base-producing elements and acid-producing elements. The perfect combination of foods is that in which there is at least enough of the base-forming elements to neutralize the amount of acid-producing elements set free, thus changing them to harmless compounds which the body then throws off. A familiar illustration of such an ideal combination is the serving of potatoes with meat.

Dividing Excess of Acid

IN AN average serving of meat the excess of acid-producing elements is neutralized by the excess of base-producing elements in an average serving of potatoes. It is an interesting fact that an excess of foods of the base-producing type is not in any sense objectionable. Such an excess of acid production is harmful because the natural reaction of the blood and other body fluids is alkaline. Among the plant foods conspicuous for the extent of their use, and which contain an excess of acid-producing elements, are rice and other cereals and cereal preparations such as macaroni and hominy. Acid producers include meats, fish, and eggs, from among animal foods. Base producers are fruits, vegetables, and milk. That fruits have an acid taste but are regarded as base-producing foods may seem paradoxical. From this, then, it is obvious that, while among fruits and vegetables there may be quite free substitution, yet rice which contains an excess

of acid-producing elements cannot take the place of the potato which gives rise to base-forming elements. The substitution of rice, because of its starch content, must be accompanied by the addition of succulent vegetables.

From a review of tables giving statements of food composition the housewife will discover that the vegetables and fruits rich in the starch form of carbohydrates are the Irish and sweet potatoes, and the unripe banana. Those containing an abundance of the sugar form of carbohydrate are beets, carrots, parsnips, corn, the ripe banana, apples, and dried fruits. Vegetables giving a relatively high percentage of protein may be used in part to replace the meat, eggs, and cheese. Representatives of this group are shelled beans, peas, lentils, and the soy beans. Those rich in iron are: spinach and other greens, beans, peas, and onions. In calcium—spinach, cauliflower, rutabaga, celery, turnips, legumes and berries. In phosphorus; legumes, cauliflower, potato, rutabaga, spinach, gooseberries, parsnips, and onions. In potash salts, spinach, legumes, potatoes, bananas, cabbage, lettuce, and the root vegetables. While in general all fruits and vegetables supply quite generously the mineral constituents named, it is sometimes of special value to know the more exact composition and to know what fruits and vegetables serve as a more abundant subsidy.

Practical Vegetable Combinations

TO ILLUSTRATE suitable meal combinations in which meat and potatoes may be very acceptably replaced by vegetables the following menus are given:

I—Roast beef Spinach Bread Butter Beverage Sliced oranges Wafers	II—Beef Stew A root vegetable, beets or carrots Lettuce or other greens Bread Butter Beverage Fresh fruit
III—Baked beans and tomato sauce Steamed brown bread Escalloped onions Fruit cup and Sponge Cake	VI—Bean loaf and spiced gooseberries Creamed potatoes Bread and butter Apple, celery and nut Salad Wafers
SUPPERS:	
I—Cream of Sweet Potato Soup Nut bread Escalloped tomatoes Baked apple Wafers	II—Salt mackerel—steamed Boiled potatoes with butter sauce Creamed onions Bread and butter Fresh apple sauce Cookies
III—Baked omelet Bread and butter and jelly Sauce Cookies	IV—Cottage Cheese Buttered carrots and peas Bread and Butter Berries Spice Cake

In explanation of the foregoing menus it should also be stated that it is regarded as highly desirable that fruit—preferably fresh fruit—replace in large measure the pies and heavy puddings that are customary desserts. Liberal introduction of a variety of vegetables is recognition of the important part that the vegetable cellar and the vegetable pit should play in the family commissary. Again, it will be noticed that there is suggestion of the frequent use of nuts—that because of their highly nutritious character, and, the fact that considering their actual food value, they cost no more than many of the generally recognized staples.

Meat Substitute

IN REPLACING meat in the diet it should be remembered that for one fourth pound of lean beef there may be allowed one half pound of dry beans or peas, two eggs, or a pint of milk. A general guiding rule to be observed in the selection of vegetables is not to combine in one meal any two of the same general character.

What the Florists Will Offer in Holiday Plants ROBERT KIFT Pa.

CHANGES BROUGHT ABOUT BY WAR CONDITIONS—SCARCITY OF CONVENTIONAL MATERIAL LEADS TO GREATER VARIETY IN FOLIAGE AND FLOWERING PLANTS

PLANTS as holiday gifts have during past years gradually fallen into a rut. It has taken the world war to awaken the plant growers to a realization of the fact that the people like variety. The war has to a great extent interfered both with foreign cultivation and exportation. This year there are no Azaleas coming from Belgium, no Lily-of-the-valley from Germany. Only limited importations of bulbs have arrived from Holland and France and some few things from England. But to offset this the raising of plants in this country has already attained a magnitude of such importance, that when the present stringency arrived the trade found itself easily self-supporting.

BECAUSE of their sturdy and lasting character, ornamental foliage plants find much favor as gifts. In Palms, the Kentias, both the tall growing *Forsteriana*, and the bushy *Belmoreana* are the most popular. *Areca lutescens* with its more feathery leaves is very graceful, but not quite so hardy as the Kentias. *Phoenix Roebelini* with its fountainlike spread of narrow leaves, is to some the most beautiful of all Palms. It is very sturdy. The Fan Palm, *Latania borbonica*, is also a fine showy variety, which looks well in the lawn vase in summer.

The *Aspidistra* with its broad dark green foliage is the most sturdy and valuable of all house plants. There are several varieties of the old favorite Rubber-plant, or *Ficus elastica*, and *F. pandurata* the Fiddle-leaved Rubber with broad leaves the shape of a violin, which when rubbed with a piece of Canton flannel polish beautifully, showing distinct white veins. The appearance of all house plants with hard foliage is much benefited by an occasional rubbing, but positively no oil or other dressing should be used, as this leaves a tacky surface which catches dust. *Dracaenas* are very decorative; *terminalis* with its brilliant red tips looks very Christmassy. *D. fragrans* with its cornlike leaves

is strong and vigorous. *D. Massangeana* a variegated form of *fragrans* with a broad golden band down the centre of each leaf, is always popular. There are a number of other choice varieties all beautiful and suitable for house plants. *Pandanus Veitchii* with its green and white striped leaves of most symmetrical form is one of the best house plants. Crotons with their brilliant coloring are wonderfully effective and while not so hardy in the house, will last several months.

FERNS are perhaps the most popular of all house plants. The Boston fern *Nephrolepis bostoniensis*, and its large family of crested types is seen everywhere. In the past decade many new varieties have been introduced.

Of the plain or smooth frond type the best are: Boston, a dwarf type named Scotti, and Teddy, Jr. Of the crinkled forms the best are W. K. Harris, *Harrisii* and Theodore Roosevelt. The tasselled varieties with their minutely cut foliage, some fronds resembling ostrich plumes while others are lacelike in appearance, are sure to attract attention. *Elegantissima*, *todeaoides*, *Verona*, *Norwood*, and *Smithii* are the best in this class. *Asplenium nidus-avis*, the Bird's-nest Fern, is of a bold type with broad glossy fronds which give it a unique appearance.

One of the most delicate in appearance but very decorative and lasting is *Cibotium Schiedeii*. It is of spreading growth. Effective in large windows.

IN THE list of flowering plants there is also great variety. The well known *Poinsettia* is probably the most showy with its large scarlet bracts. Novelties are seen in both pink and white varieties of the *Poinsettia*. *Euphorbia jacquinaeflora* is a choice variety, particularly when a number are planted together.

Cyclamen are at their best for the Christmas holidays and nothing could be more beautiful than a well flowered specimen. They are to be found in all their splendid colorings in every flower shop. Flowering Begonias, great favorites of all plant lovers are also at their best during December. *Begonia Gloire de Lorraine* with the clouds of pink blossoms which are borne so profusely as to almost hide the foliage is the first of its type. *Begonia*

Glory of Cincinnati is a strong grower, also pink, with larger flowers and foliage. *Begonia Mrs. Peterson* is a new variety with both bronze colored flowers and foliage, it is robust and free flowering. There will be quite a few Azaleas from plants imported last fall which owing to difficulties of transportation, arrived in poor condition. They made a good growth since that time and are now well set with buds.

Chinese Primroses as well as some of the *Primula obconica*s give variety. They are old acquaintances that are always welcome. Several varieties of the Heather are most conspicuous at this season. *Erica melanthera* with its clouds of white blossoms is a first selection with many. A pink variety called *rosea* is also much in favor.

Some of the bulbs are forced for the holidays. Roman Hyacinths and Paper-white Narcissus and Duc van Tholl Tulips, when flowered a number together are quite showy.

Berried and fruited plants are always in demand, particularly the Christmas Pepper with its wealth of brilliant red fruits. *Solanum capsicastrum*, the Jerusalem Cherry, is seen in variety with its bright red berries.

Ardisia crenulata with its glossy leaves and whorls of beautiful coral red colored berries which hold for more than 12 months, is one of the best plants of its kind.

Otaheite oranges of dwarf growth but carrying an abundance of well colored fruits about the size of golf balls are showy and attractive. Combinations of foliage of flowering plants and ferns arranged artistically together in tin lined baskets and jardinières will be features at the holiday season. These are arranged at the greenhouses by men skilled in this artistic work. Pink Begonias and Ferns are grown in blue baskets and tied with blue ribbons. Oranges are planted with Crotons in bronze colored baskets and tied with bronze green ribbons. Heather and Poinsettias make stunning effects. *Ardisias* and Heather with Crotons and Ferns are striking. There is great variety in this artistic grouping scarcely any two pieces being found alike.



Of all the holiday berry plants *Ardisia* is the most enduring. Berries will remain for a whole year



This is *Croton Reedii*. Crotons come in a bewildering variety of barbaric mixtures of color and in equally diverse form of leaf



There are available several Begonias of the *Gloire de Lorraine* type, ranging from light pink to deep red

Can You Cook a Potato? EFFIE M. ROBINSON

WITH an extra bushel of potatoes for every man, woman and child in the United States (official figures) this year the cooking of the potato becomes a real menace. Simple! Yes, any one can boil a potato—somehow—but the problem is to do it right, and know how and why you do it.

How to Choose Your Potatoes

GREENISH, or black colored, frozen or softened potatoes may as well be thrown out at once. Don't waste your time prepar-

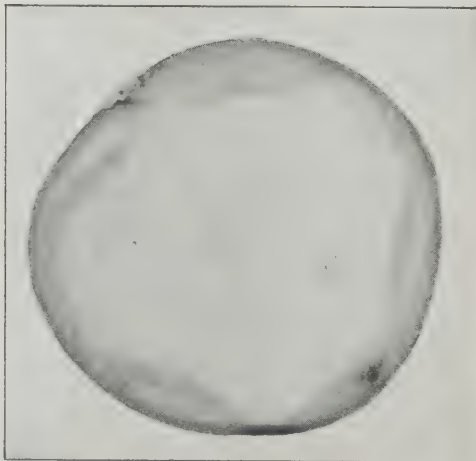


There is economy in properly peeling a potato. Let the knife closely follow the thumb and pare thinly

ing them for the table—find some other use for them. Potatoes should be firm and white and of even size. Whether you dig them from your own ground or buy them from the stores, large and small are always jumbled together. Now, if cooked as they come the small ones will be cooked to a mash before the large ones are done. If you must cook large and small together do not cut the large ones but make a handicap race out of it. Start to cook the large ones a few minutes before the small ones are put in, they will then all finish cooking at the same time.

Preserve the Gluten

PEE your potatoes very thinly. The gluten, which lies just underneath the skin, is the most nutritious part of the potato; the rest of it being composed chiefly of water and starch. As you will see by the illustration of a slice of potato, the layer of gluten is very thin in some places, and if the skin is peeled off in great chunks the gluten is peeled off with it and thrown away, thereby losing



Do you realize that the outer portion of the potato has the best food value? Gluten is shown by the darkened area on the margin of the picture

the nourishment and wasting the potato, and consequently more potatoes will be needed for a dishful.

New potatoes must be scraped as the skin is very thin and peeling would cut away too much. All potatoes must be scrubbed quite clean before peeling. This done drop them into a bowl of clean water. Use a small sharp vegetable paring knife, letting the thumb follow the knife closely all the way down the potato. This keeps control of the knife and will prevent it slipping. Drop them into cold water, after peeling them, till you are ready to cook them to prevent them from turning black.

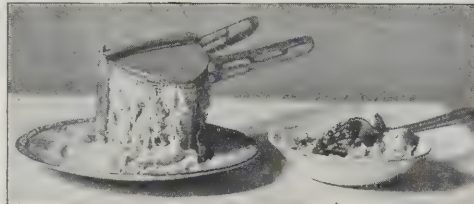
If You Don't Want to Peel Them

SOME people think it is better to cook potatoes with the skin on and that they are a better flavor. If this is done they must be put on in cold water to draw out the poisonous acid, called solanin, that is in the skin. It gives a bitter flavor and has sometimes been known to cause illness. It is more pronounced in old potatoes.

When preparing potatoes with the skin on, whether new or old, it is a good plan to "top and tail" them. That is, cut a small piece off each end of the potato, or you can cut a very narrow strip off all around it, making it easier for the salt to penetrate, besides giving the potatoes a better flavor.

The Water You Must Use

PUT potatoes into boiling water to harden the gluten. Gluten is the same sort of substance as the albumen found in the white of eggs and if put into cold water it will melt and soften. As a result a great deal of



"Flowery and light." The tool on the left is handy and efficient. Two forks make a serviceable masher

it will be lost before the water gets hot enough to harden it. Have plenty of water in order to give the starch grains room to swell, and to each two quarts of water add a heaping teaspoonful of salt. Keep the lid on closely to prevent the steam escaping. Boil them gently and steadily to prevent them from breaking. After half an hour try them with a skewer or a steel knitting needle (anything that will make one hole); a fork pushed into a soft boiled potato will break it and spoil its appearance. When the tubers are tender, drain the water off into a bowl (not into the sink!) as the water is a good foundation for cream soups or broths.

How to Have "Balls of Flour"

NOW for the secret of dry floury potatoes! Drain the potatoes dry. Give the pan a sharp, quick shake. This breaks the coating of gluten and the white starchy inside is exposed, making the potato look like a ball of flour. Put the saucepan back in a warm place, laying a clean soft cloth on the top to absorb the steam. Don't put the lid on as that keeps the steam in and makes the potato soggy and discolored. You can keep potatoes warm with the cloth on top for about ten minutes without spoiling.

How to Steam

IF MORE convenient, potatoes can be steamed instead of boiled. The water must be boiling and steam ready before the potatoes are put into the steamer. Peel them the same as you would for boiling, then place them in the steamer and sprinkle salt over them. They will take about one hour. Shake the pan as for boiled potatoes. I see no par-



"Hacking off" the skin is wasteful of food. And moreover, sacrifices the best part of the potato

ticular advantage in this method myself if the potatoes are put into boiling water, though some people claim that there is so much water in a potato that it is better not to put them into more.

For Salad

POTATOES for salad must not be shaken because they are required to be as waxy or watery as you can get them. The small potatoes are best for that purpose. Cut them while hot.

How to Bake

THE lady next door to me never baked a potato in her life and there may be others like her. You cannot bake new potatoes—the skin is too thin. But when the skin becomes thick and corklike it is a delicious way to cook them. Scrub them quite clean; then dry them thoroughly. Have a hot oven ready to bake them in or the skin will not be crisp; and when they are nearly done prick them with a skewer in two or three places to allow the steam to escape; otherwise they will quite likely burst all over the oven. They take about one hour to bake.



"Is it done?" Use a knitting needle to explore; a fork may smash the potato to a pulp

COLD LESS INJURIOUS THAN LOSS OF MOISTURE—WHY A MULCH WILL SAVE AND HOW IT CAN SOMETIMES BE INJURIOUS—CAN A TENDER PLANT BE MADE HARDY?

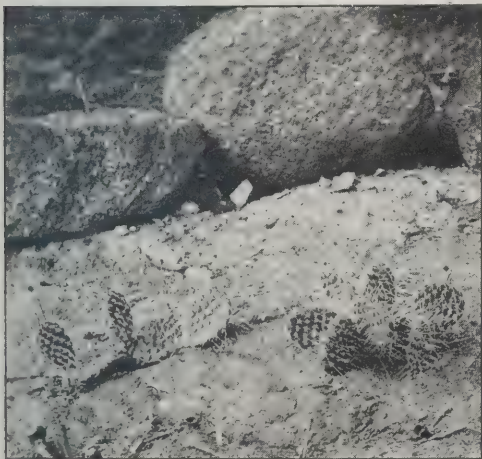
WINTER protection to be effective must be intelligently done. This, to some may seem a mere truism, and to others an affectation, since what intelligence is needed to wrap or cover up a plant and so protect it against the cold of winter? But there's the rub!

Are you in fact protecting it against the cold? Can you really protect a plant against the cold with the thermometer below zero and the frost penetrating the soil to a depth of six feet and more? Obviously under such conditions no amount or kind of covering can long retain a higher temperature than that which surrounds it. Covering, however, does carry through the winter plants that would otherwise succumb. It cannot well be warmth since none is provided. Then what is the adverse factor that covering a plant counteracts?

Consider a Rose that has winter killed. All its canes are dried and shrivelled, just as though they had been dried in an oven. Compare these canes with those of another Rose bush that has passed through the winter beneath a mound of earth. How plump and pliable are these latter, how sappy they look! Yet the two bushes may be of the same variety, as, for instance, Gruss an Teplitz which I have carried through the winters of North Dakota by the hundreds, simply by hilling about the bushes with a mound of earth. Exposed bushes always die down to the ground; and exposed portions of canes die back to the soil covering.

It is not the cold but the excessive evaporation that "winter-kills." Protected against evaporation (and soil is the surest means of protecting against it), a Rose bush passes through our coldest winter unharmed; exposed, the bushes succumb save during an exceptionally mild winter. What is true for Gruss an Teplitz is equally true of a very large number of hybrid perpetual Roses.

So hardy and vigorous a grower as Spiraea Van Houttei gives like evidence. During a cold dry winter when the snow is always light and dry, and much of it apparently freezes away, this shrub comes out in spring badly winter-killed, never down to the ground, but with its top full of dead wood. During winters when there is much wet snow, it passes unharmed to bloom like a bank of snow in spring. Of course no one ever thinks of covering a Spiraea bush.



Even in the extreme north the Prickly Pear will winter under the shelter of a rock



A piece of ice hung in a tree lost appreciably during February. Evaporation is the cause of winter-killing

Evaporation of Ice

A CHUNK of ice weighing nineteen and a half pounds was hung among the branches of a small Oak on February 2nd and when taken down on the fourteenth it weighed eighteen pounds. There was not a minute's thaw during the entire time the piece of ice hung in the tree, indeed the thermometer registered below zero almost every day. Thus in less than two weeks this ice, a solid mass, gave up by evaporation very close to 8 per cent. of its total weight, a concrete example as you will admit of what wooded plants are called upon to endure.

Again on February 27th another piece of ice was hung among the branches of the same Oak. This time the ice was placed in a pan so that no water might be lost during warm weather. Ice, pan and the wire supporting it weighed twenty-four pounds. This hung out until March 24th when only water was left and the entire outfit then weighed eighteen pounds, a loss therefore in a little less than a month of more than 25 per cent. since the weight of the pan remains constant.

Let it be borne in mind that a plant is subjected to this stress of evaporation while the roots are in solidly frozen soil and have no means of replenishing the moisture lost. Under such circumstances evaporation has a meaning all its own. It is apparent that a plant with well ripened wood has a much greater chance of living through such conditions than one with its wood green and sappy. That is one reason why native Roses pass through our winters unharmed while many of the improved sorts succumb if unprotected.

What We Must Do

AS AN axiom of winter protection it may be stated that any method to be effective must protect against evaporation. The extent to which it prevents evaporation marks therefore the effectiveness of the material selected.

Given suitable soil, most of the climbing Roses will grow in the Northwest, but a mat of straw tacked over them against the wall will never carry the canes through winter. They must be laid down and covered with about a foot of soil, and so covered they will come out in spring alive to the very tip. Where from some cause or other this cover is removed in spots, the canes may be alive at either end with a dead section here and there. This of course means that only the part below the lowest dead section will remain alive.

A Hardy Cactus in the North

NO ONE would at first thought associate the Prickly Pear Cactus of our warmer states with the cold of a Northwest winter; yet, as our picture shows, it may be met with growing wild on the prairies of Montana. This photograph was taken about a mile out of Glendive, Montana; and, the picture also shows, the Cactus hugs the ground pretty closely for in so doing it is assured of a plentiful covering of snow and consequent protection in winter. The cold penetrates the soil to such a depth and leaves it so slowly that you may strike frost down in the soil even in late May and sometimes in early June. Under such conditions it does not seem reasonable to suppose that this Cactus native though it be to the sandy wastes of our hottest sections, requires any protection against cold. That it does require protection against evaporation becomes apparent from the very nature of its growth.

Freezing is not injurious, but should the plant be called upon to give up moisture at a time when it lacks the means of replenishing the loss failure is certain. As an odd and interesting growth in the garden one may carry this Cactus through the winter if planted where boulders or a wall will protect it from the searching winds of the north and west and covered with a thick layer of straw. It is expected of course that there will be no lack of snow.



In Montana this Cactus hugs the ground and gets natural winter protection

The Herbaceous Border

HERBACEOUS perennials dying down as they do each year and with roots tucked away from the reach of the wind would appear to require but little if any winter protection. Nor do they. Though to cover them with leaves, straw and other litter gives us a certain contentment as of having done our best by the plants. Yet we find that uncovered plants pass through the winter equally well. *A perennial that is not hardy cannot be made so by any amount or kind of winter protection.* Occasionally one may carry a perennial of doubtful hardihood through a mild winter, but the very next winter proves the fallacy of our theory that protection is a

help through the winter. Against the vicissitudes of our springs we cannot protect a plant and these vicissitudes are many: cold, damp soil, late frost, drying winds and the like.

How a Mulch Works

A HEAVY mulch of soil or other material will retard the sprouting of the roots in spring, but the chances are small that the plants can be held back long enough to help them in their struggle against a capricious season. In spite of all the roots will attempt to grow and the covering, if not removed in time tends to make the sprouts spindling and even induces rot by over heating. Along the south side of a house perennials will come up a

week and even two weeks ahead of those against the north side, yet in either case a hardy perennial will pass through the winter as well unprotected as protected.

Spruce boughs make excellent material for winter protection since they, like soil, retard the circulation of the air and so prevent evaporation. The newly fallen leaves have little protective value, rather it is the blanket of leaf mould underneath that keeps the plants of the forest snug through the winter. Also of course, the snow that gathers there is a considerable help.

The practical lesson for every gardener to learn is that mulching material must be light and airy to be effective.

NOVEMBER IN THE SOUTH

OPPORTUNITY FOR FALL PLANTING.—PREPARATIONS FOR NEXT YEAR'S FOOD GARDENS

FALL planting is now the occupation of the Southern gardeners. Fruit trees and ornamental trees and shrubs can be planted now. Prepare the borders in the flower garden for the spring blooming bulbs, mixing in well rotted cow manure. Plant Tulips and Hyacinths from four to six inches deep. Plant Narcissus, Snowdrops, Star of Bethlehem, and Chionodoxa in irregular groups in the grass for naturalization. They increase and spread, and do much better when left undisturbed, which would not be the case if planted in the flower borders.

If the weather is open, sow lawn grass seed during the early part of the month on thoroughly prepared land. Sow the seed broadcast, then use a heavy roller to press it into the soil.

Make a new strawberry bed the early part of the month if the soil is not too wet and the weather is open.

Spread agricultural lime over the vacant plots in the garden, and in ten days or two weeks thereafter spread broadcast well rotted manure, and plow in deep, and leave the ground rough so as to mellow with the constant freezing and thawing. In early spring it can be again plowed and thoroughly pulverized with the disk harrow and rake. Sow rye now and plow under in the spring. It benefits the land by making humus.

Last Sowings in Order

MAKE a last sowing of spinach, kale, and turnips for salad either broadcast or in rows.

Keep the lettuce frames going steadily, one crop following the other. Plants from seed sown in August and transplanted in September should have been pushed to maturity by fertilizers (nitrate of soda, or liquid cow manure), so that they will be headed up well by Thanksgiving. More seed should be sown now to be ready for transplanting in January. Use Burpee's Way-ahead, a good butter head type; Hanson has a good flavor and is crisp, has a crinkled leaf, does not head up.

Asparagus plants can be set out from now on until March as long as the ground is in good working condition. Giant Argenteuil, Reading Giant, and Conover's Colossal are good types and free from rust. The latter is well flavored and good for cutting green. The former is large and tender and excellent for canning. Plant asparagus in trenches two

feet deep and two feet wide, five feet apart, and fill in with one foot of manure, cover with four inches of soil and place the plants fifteen inches apart in the trench and crosswise, spreading out the roots. Pack the dirt around the roots, but do not fill in the trench completely. Asparagus roots have a tendency to work upward and should be planted deep and the dirt filled in gradually. The shoots should not be cut for three years, and then very sparingly. Cut only for two months after the shoots appear above ground. Asparagus is a gross feeder, so cover heavily with manure in the fall, and supplement with a commercial fertilizer in early spring, and harrow into the soil in March, as the cutting begins in April.

Set out the cabbage plants for the spring crop. Early Jersey Wakefield is a good early variety. They need little protection, only coarse strawy manure between the rows, not close on the plants, as it would be too heating on mild days.

Continue to bank up the celery plants, and at end of month or first of December cover with straw or pine tags, placing on top some planks in a sloping manner like a roof so as to carry off rain and snow.

Making all Snug

PRUNE old apple trees and scrape the loose bark from the trunks, as it harbors insects beneath. Peach and plum trees should be trimmed and the trunks examined for borers. Dig a foot below the level of the ground, and cut out the borers with a stout wire or a sharp knife, and paint the trunks for a foot below, and two feet above the level of the ground with coal tar or lime-sulphur.

New trees should be pruned and headed low, making it easier to gather fruit. Feed the roots of the trees either by spreading manure broadcast and plowing it in, or sowing rye or crimson clover in the orchard the last of October or first of November to be plowed under for green manure in the spring.

Search for cocoons and eggs of caterpillars and insects and destroy them now. It will save much labor in the spring. Examine the ornamental trees as well, and destroy the cocoons of the tussock moth, and any other evidence of insects.

Protect Otaksa Hydrangeas and standard tender bush Roses with a little straw wrapped about them. Other Roses only need coarse strawy manure above the roots.

Sow seed of Poppies, Forget-me-nots, and Sweet Alyssum, and Portulaca, and Arabis in the border where they are to remain.

Clean up the flower borders thoroughly and burn up the trash. Trench between the perennials and roses, digging above two feet, putting in a foot of manure and replacing the dirt on top.

VIRGINIA.

J. M. PATTERSON.

Fall Plowing for an Early Start

PREPAREDNESS is the present moment slogan for the gardener as for anybody who is aiming for efficiency. The gardener must get started in the fall and continue his preparations during the winter, in order to forward the work of spring. While trucking in the North, my most important work in the fall was plowing. On land that is to be plowed in the fall one can use fresh manure, full of straw or shavings, with success; for the rains of early spring and the spring work settle the dirt down firmly on and in the manure. In this way one gets all the value of the manure. Another advantage of fall plowing is that the soil is improved by freezing when left rough. It also helps exterminate injurious worms, as grubs, wire worms, etc. In this section, very little fall plowing is done, for the following reasons: Either the soil is so light that it blows, or, where heavy, it runs together so that but little is accomplished; or, some cover crop is or ought to be growing. Soils that are poorly drained should have attention given to their drainage before the ground freezes. Small patches are easily drained by digging ditches twenty to thirty feet apart and three feet deep and filling them with stones within 18 inches of the surface. Trenches of this sort will carry off all surplus water and admit of very early working in the spring. Here cantaloupe growers draw new manure for compost heaps; but in the section south of us, furrows are plowed, manure drawn directly from the cars and placed therein, being left there until about time for planting. Manure is also drawn for covering the strawberry patches. Don't wait until next spring to plan improvements to your ground. The fall is a good time to transplant apple and cherry trees, evergreens and Rose bushes. Prune fruit trees and grape vines, etc.

MARYLAND

SAMUEL H. GAREKOL.

A Woman's Idea that Proved a Business Inspiration

Just about 5 years ago at this time, one of our esteemed clients, Mrs. F. N. Doubleday, of Oyster Bay, L. I., called on us for aid to carry out a most unusual idea. Knowing her husband's sentiments toward trees, also the beneficial and restful influence exercised by their presence, she decided to give him Trees for a Birthday Gift! Three stately Evergreens she selected at our Nursery, trees 30 years old, ready to immediately produce the effect for which nature created them. We planted the trees within sight of Mr. Doubleday's office window and there, they have ever since fulfilled the mission for which a thoughtful woman intended them.

Here, then, is the idea of gifts of an unusual character. Instead of jewels, tapestry, etc., think of living trees as the greatest of all gifts combining usefulness with beauty and interpreting sentiment in the most delicate degree. In expressing *your* sentiments, call to your assistance

Hicks'—The Nursery That's Prepared

We have been getting ready for just this type of service for over a quarter century. Acorns we planted have developed into stately oaks, ready to become some one's pride on the home grounds. *Evergreen hedges* tall enough to furnish *immediate* seclusion; symmetrical *shade trees* that will make the *new* home as restful and cool as the old estate; Pine windbreaks that will add many degrees of comfort to homes in windswept sections—these and many other large trees *developed for specific purposes* are ready at this nursery, waiting to perform the duty which *your* ingenuity may assign to them. There are tree gifts to suit all purses. Attractive groves of shade trees are available for \$50.—Every dollar invested in Hicks' Large Trees stands for a substantial saving of time.

"Shade"

A Booklet "De Luxe"

Points the way to tree gifts for every purpose and occasion. A cozy, shady nook, made to order at Hicks' for the grandchildren; a living hedge, more economical and more beautiful than stone or iron fences; the Boundary Line Beautiful of Hemlocks or Pines, these are but a few of the subjects fully described and illustrated. All are ready at Hicks' to serve people of discrimination in search of the unusual in gifts for all seasons. Both, "Shade" and "Fall Leaves" are mailed free on request. Editions limited—write TO-DAY.

Hicks' Trees are Guaranteed to Grow

At this nursery, men, methods and sentiment combine to help nature produce trees and plants of extraordinary character. We ourselves love trees—that's why we understand their needs for perfect development. This we encourage by frequent transplanting, repeated pruning and such other cultivation as each tree deserves. The 100-point product thus obtained is dug with particular care, packed, as many decades of experience have taught us how and shipped or delivered in such a manner as to bring the trees to their new home in a thriving condition. Hicks' Trees *must* grow for you or new trees will be supplied without charge for any that do not grow satisfactorily.

"Fall Leaves" To us, trees and plants are living things, to be treated with consideration and to be fitted to the environment that best suits them. We find trees to be ideal material with which to produce color harmony around the home. Particularly happy examples of trees put to ideal uses are illustrated in our new folder "Fall Leaves," telling about Trees for November and December planting. To the man or woman looking for practical examples of good tree plantings, this booklet will prove an inspiration. A limited number are still available to fill quick-action inquiries.

Hicks Nurseries, Box M Westbury, L. I., N. Y.
Phone 68



Christmas Gifts of Unusual Character for the Busy Business Man

The following special offers should prove of particular interest to New York Business Men who are in a position to look over these "Gifts" and select what most appeals. We are always glad to look after the details of delivering and planting.

"Live" Screens to Shut off a Noisy Street, in form of a Wall of Green, 8 ft. tall, \$3.18 per running ft., \$318 per 100 ft.

A Wall of Green, that Saves 10 Years' Waiting, \$6.60 per running foot.

A Group of Rare Evergreens for Foundation Planting, 32 Specimen Plants of various heights and shapes \$36.

A Little Fruit Orchard, containing our own choice of a "Home Use Fruit Collection" of 13 Trees for \$6.

Appetizing Small Fruit Collection of Berry plants and Roots, 170 Plants of many kinds \$7.

A Grove of Big Shade Trees, composed of kinds with particularly brilliant foliage at different seasons, 12 Well-shaped Specimens for \$10.

These are but a few of the many remarkable offers you'll find in "Shade," the booklet described below, which is yours free for the asking. Why not take us into your confidence and let us help you select the tree or plant gift that will best please the recipient?

Iris and Phlox

With a selection from the choice varieties listed in my Hardy Plant booklet, you can have flowers from spring until frost. This fall is the time to set Iris and Phlox, for, if you do so, they will bloom next year. If you cannot come in person to select your plants, send your name and address for a copy of the booklet.

Adolf Müller DE KALB
NORRISTOWN, PENNA.

THE most complete stock of
hardy plants in America. Illustrated catalog of hardy plants, shrubs, trees and bulbs sent free on request.

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Campanula barbata
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Rock Pinks—18 varieties
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Myosotis "Welwitchii"—New
Polyanthus—Bush Primrose—Finest Strain
Verbascum—Miss Wilmott

Descriptive Booklet FREE

WOLCOTT NURSERIES, Jackson, Mich.

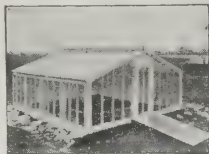
Twice Armed Be Your Garden

In these war times a Sunlight Double Glass Sash outfit—a cold frame, a hot-bed, or a small ready made greenhouse is doubly valuable. It will carry the growing of many kinds of vegetables through Fall and Winter, and provide plants for early crops out-of-doors in Spring. These food supplies are now vital and when peace comes the same glass for a lifetime longer will go on expediting flowers and vegetables.



Cold Frames or unheated greenhouses are best for certain crops and conditions, but it is easy to turn a Sunlight Cold Frame into a hot-bed or provide artificial heat for a small double glazed greenhouse.

Even the little Sunlight Suntrapz set over plant boxes in a sunny room or in the sun out of doors will do their bit in starting seed or growing plants.



Sunken Path House

Immediate shipment is made of sash, greenhouses, top frames, pit frames or any other outfits we carry in stock.



Bench House

Get our complete catalogue and net price list. A postal card will do.

SUNLIGHT DOUBLE GLASS SASH CO.
927 E. Broadway Louisville, Ky.

For Those Who Garden Under Glass

The matter of seed sowing constitutes often a most tedious job. If done hurriedly, by hand, rows are apt to be irregular, seeds are often sown too thickly. The resulting need of thinning is a serious loss of time, not counting the waste of seeds. All this can easily be avoided by the use of

PERFECTION DRILL AND SEEDER



which marks the greatest improvement in hand and drill seeders in the last quarter century.

Will sow all kinds of small garden seeds evenly, and to uniform depth. Of particular usefulness in hotbeds and greenhouses. A board is placed across bench, on which the little wheel runs. This operates the disc in the hopper which regularly and evenly drops all seeds, from lettuce and radishes to cabbages and tomatoes. Different size discs are supplied for different size seeds. The drill is a model of simplicity, cannot get out of order, and serves its purpose a lifetime. Used on all flower or vegetable seeds.

Price \$2.00; weight 1 1-2 lbs.

Soon pays for itself in seed and labor saved. Will do several times as much work as is possible to do by hand. Descriptive circular on request. Write or order to-day.

OSMUNDSON SPADE MFG. COMPANY
Perry, Iowa

Special Prices to Jobbers and Dealers

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in November

(Following dates are meetings unless otherwise specified)

- Minnesota, Minn., Garden Flower Society. Chrysanthemum Show, by announcement.
- Oct. 31 } Special Fruit Exhibition of the Massachusetts
to Nov. 4 } Horticultural Society, The New England Fruit
Show, and the American Pomological Society,
Boston, Mass.
1. Marshfield, Mass., Garden Club.
 2. Pasadena, Cal., Horticultural Society.
 5. New Bedford, Mass., Horticultural Society.
 6. Lake Geneva, Wis., Gardeners' & Foremen's Ass'n.
 - Garden Club of Pleasantville, N. Y.
 - 7-8. New Bedford, Mass., Horticultural Society.
Chrysanthemum Show. (Subject to change.)
 - 8-11. Cleveland Flower Show, Cleveland, Ohio, in conjunction with Annual Meeting and Exhibition of the Chrysanthemum Society of America (Cleveland) and Fall Meetings and Shows of the American Rose Society (Cleveland), and American Carnation Society (Cleveland).
 - Horticultural Society of New York, American Museum of Natural History, New York City. Annual Fall Exhibition.
 9. Connecticut Horticultural Society, Wethersfield.
 - Westchester, N. Y., & Fairfield, Conn., Hort. Soc.
 - 9-10. Valdosta, Ga., Floral Club (amateur) Chrysanthemum Show.
 10. Dobbs Ferry, N. Y., Horticultural Society.
 12. Park Garden Club, Flushing, L. I.
 - Rochester, N. Y., Florist Association.
 - New Rochelle, N. Y., Garden Club.
 14. New York Florists' Club, New York City, N. Y.
 - Short Hills, N. J., Garden Club.
 - Lenox, Mass., Horticultural Society.
 - Nassau Co. Horticultural Society, Glen Cove, L. I.
 15. Marshfield, Mass., Garden Club.
 - 15-16. Rhode Island Horticultural Society, Providence, R. I. Exhibition.
 16. Pasadena, Cal., Horticultural Society.
 - Dahlia Society of California, San Francisco, Calif.
 20. Lake Geneva, Wis., Gardeners' & Foremen's Association.
 - Gardeners' and Florists' Club of Boston, Mass.
 - Rhode Island Hort. Soc., Providence, R. I.
 - Tarrytown, N. Y., Horticultural Society.
 23. Connecticut Horticultural Society, Wethersfield.
 24. Dobbs Ferry, N. Y., Horticultural Society.
 26. Park Garden Club, Flushing, L. I.

New York Spring Show

THE International Flower Show for New York, March 14 to 21, 1918, will be held under the same conditions and in the same place as the previous internationals—the Grand Central Palace. The preliminary schedule has been issued and offers as a framework of the display classes very much the same as those in preceding years. For the display of cut Roses, covering two hundred square feet, the first prize is \$500; for display of Carnations, \$150. In the named classes for cut Roses, prizes vary from \$50 to \$100. Display of Orchids, \$500. For a border planting, \$500. No inducement is offered for the hitherto familiar Rose Garden feature.

The Exhibition Season

DURING the month of November various horticultural societies will hold annual and fall shows in which the Chrysanthemum naturally will reign supreme. The biggest gathering will be at Cleveland, Ohio, where the Chrysanthemum Society of America will hold its annual convention, November 8 to 10. Several coinciding events combine to make this a truly representative gathering of the season. The Cleveland Flower Show is conducted under the direction of the Ohio Horticultural Society, the Cleveland Florists' Club and the Garden Club of Cleveland; and in addition to being combined with the meeting of the National Society devoted to the Chrysanthemum, there will also be combined fall meetings and exhibitions of the American Rose Society and the American Carnation Society. The combined displays will be held at the Hotel Statler. Naturally these events will offer the best opportunity this season of seeing grouped together at one time the various novelties in the florists' flowers.



Have Flowers in Your Home all Winter

At very little expense and with but little care you can have an abundant succession of flowers in your home throughout the entire winter.

A Very Simple Method

of indoor culture is given in our Autumn Bulb Catalogue. Let us send you a copy. Learn how to bloom Paper White Narcissi, Roman Hyacinths and other attractive flowers in your home.

You will also find in this catalogue cultural directions and a list of bulbs for fall planting outdoors. It is a splendid guide for amateurs—write for your copy at once.

Narcissi, Paper White Grandiflora
First size, 13 to 15 cms, 50c. doz. \$2.75 per 100.
\$25.00 per 1000.

French Roman Hyacinths, White
12 to 15 cms circumference, \$1.10 doz. \$8.00 per 100.
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Points West add 15% to your remittance

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Seedman Dept. G
128 Chambers St. New York

Roses for Fall Planting

Plant now for indoor bloom this winter and for early outdoor bloom next summer. You'll find a lot of helpful suggestions in our

Autumn Floral Guide

Lists and describes Pot Roses for indoor bloom, Own-root Roses and Hardy Climbers for out-door fall planting. Also hardy Ornamental Flowering Shrubs, Peonies, double herbaceous, Hardy Perennials, Hyacinths, single and double, Tulips, tested on our own grounds, and fall seeds for fall planting indoors and out.

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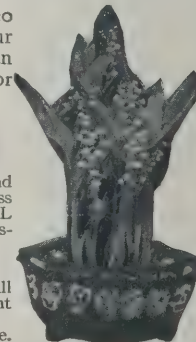
6 pips \$0.50
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20 pips 1.25
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Farr's Superb Lilacs For Fall Planting

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Seemingly perfect as were the old purple and white sorts, the master hybridizer, Victor Lemoine, touched them with his magic hand, and lo, from them a multitude of glorified forms and new colors appeared, with individual flowers and trusses more than doubled in size, with varieties early and varieties late, thus considerably lengthening the blooming season.

Ellen Willmott, with long pointed trusses and large snow-white flowers; Belle de Nancy, soft lilac pink; the splendid early flowered giant, Leon Gambetta. These are but a few examples of the more than 100 new varieties that I grow on their own roots at Wyomissing. All these new Lilacs are unusually free bloomers—far surpassing the old sorts. If you wish these rich blooms in your garden next spring, the plants must be set this fall.

Farr's Hardy Plant Specialties

(Sixth Edition, 1917-1918) describes Lemoine's new Lilacs, Deutzias, Philadelphus, Japanese and German Iris, more than 500 varieties of Peonies, Evergreens, and Rock-plants. 112 pages of text, 30 full page illustrations (13 in color). A book of distinct value to garden lovers. If you do not have a copy of this Sixth Edition, send for one to-day.

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Pronounced by practical growers everywhere as the greatest sort ever evolved for either underglass or outdoor cultivation. One unbiased critic, familiar with all standard tomatoes, calls Livingston's Globe "a mighty responsibility and trust," because of its near perfection. Dependable under all conditions, early, very prolific, of great solidity and good size with a deep pink skin of a matchless shade, Livingston's Globe is indeed a mighty trust to take care of. How well we succeed in doing it is attested to by the thousands of pounds of highest priced seed we sell every year. For underglass culture we offer seeds from our special private stock, extra-selected, saved from clusters of ideal fruits, at 35c per trade packet; ½ oz. 85c; ¼ oz. \$1.60; oz. \$3.00.

Quality in Tomato Seeds

cannot be bought cheaply. The underglass grower especially can ill-afford to run the risk of disappointing crops, when the cost of growing them is so great. Livingston's "True Blue" Tomato Seeds are sold in sealed packages only, protected by our "True Blue" Trademark, as shown below. To make sure of the genuine Livingston Grown Seed, order direct from us.

Other "True Blue" Seed Specialties for Use in Hotbeds and Greenhouse

The man who puts absolute dependability above mere price consideration will do well to profit by the experiences of this country's foremost underglass gardeners. Their choice among the most popular vegetables includes

Livingston's Strain, Crosby's Egyptian Beet, early, small-leaved, fine quality. Pkt. 10c; oz. 25c; ½ lb. 75c.

Vickery Forcing Cucumber, an exceptionally fine strain of the White Spine type. Pkt. 10c; ½ oz. 30c; oz. 50c.

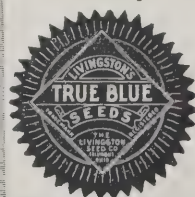
Livingston's Special Grand Rapids Lettuce, the "crinkly" fringed bunch lettuce. Pkt. 10c; oz. 25c; ½ lb. 75c; lb. \$2.50.

Fireball Radish, the earliest of the small red forcing kinds. Pkt. 10c; oz. 20c; ½ lb. 70c; lb. \$2.00.

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Catalogues of "True Blue" Seeds FREE, also "Tomato Facts"

Tell us whether you garden for pleasure or profit, on a large or small scale, and we will mail you that one of our catalogues that will serve you best. "Tomato Facts" is a unique booklet tracing the progress of the tomato from a little-known weed to its present day perfection. Contains many fine recipes. Write for your copy to-day.



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Fourteen Superfine Hardy Phlox

Most of them are recent introductions of famous European specialists. A wonderful advance in color and size over the old varieties, many of the shades being entirely new in Phlox.

Phlox can be safely planted as long as the ground is not actually frozen.

- Astrild**—Bright cochineal-carmine.
B. Comte—Brilliant rich French purple.
Europa—White with decided crimson-carmine eye.
Elizabeth Campbell—Bright salmon-pink, with dark crimson eye.
Geffon—Tender peachblossom pink, with bright rose eye.
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Minerva—Luminous violet-rose, with white suffusion and a bright carmine eye.
Mrs. Jenkins—The best all round pure white.
Riverton Jewel—Lovely shade of mauve-rose, illuminated by a brilliant carmine-red eye.
Rheinlander—A most beautiful salmon-pink.
Rynstrom—Same carmine rose color as the Paul Neyron.
Thor—Beautiful salmon-pink, overlaid with a deep scarlet glow, large white halo and aniline red eye.
Viking—One of the latest to flower, of a pleasing soft salmon-rose.
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Price—Any of the above Superfine sorts, 20 cts. each; \$2.00 per doz.; \$15.00 per 100; set of 14 sorts, \$2.50.

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"Inside Facts of Profitable Fruit Growing" and "How to Beautify Your Home Grounds" sent prepaid for 10 cents each.

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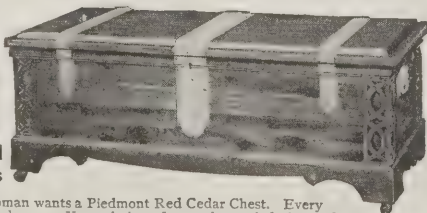
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Reduced Factory Prices, Freight Prepaid



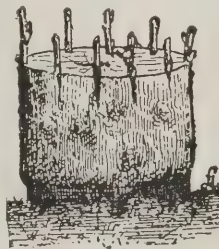
Reproduction of part of photograph in *Le Jardin* (France) showing wanton destruction of fruit bearing trees in evacuated districts

Helping the French Orchardists

THE Horticultural Society of New York is making an effort to render practical aid to the devastated orchards of France. The Treasurer, Mr. Frederic R. Newbold, Poughkeepsie, N. Y., has already been able to transmit nearly \$2,000 through one of the members of the Society, who is also a member of the American Government Commission for the restoration of the devastated villages of France, and has volunteered to personally attend to the distribution of any funds that are sent over by the Horticultural Society of New York. The response from the membership of the organization was so gratifying that the Society decided to broaden its appeal and is now asking the active support and coöperation and subscriptions from members of the other societies and garden clubs. Subscribers can feel assured that any funds put into the hands of the officers of the Horticultural Society of New York will really reach those who are in need of them. It is estimated

that more than a million of fruit trees and berry bushes had been wantonly destroyed in Northern France up to June.

Interest is centred not only in replanting devastated lands with new trees, but also in the work of distributing graft wood and bud sticks for their reconstruction, where the trees had been cut off



Application of the "top-working" idea to rehabilitate the orchards, perhaps with better varieties

short as is shown in the accompanying illustration. Grafting methods will fortunately save and reconstruct thousands upon thousands of the destroyed orchards. The Horticultural Society of New York has identified itself very closely with beneficent activities in connection with the International Flower Shows in New York. During the last three years more than \$27,000 has been handed over to the Red Cross and War Relief Committees coöperating.

THE GARDEN MAGAZINE urges its readers to contribute their share in the fund now open for the relief of the French orchardists. Sums of \$1.00 and upward will be gratefully acknowledged by the Editor, or they may be sent direct to the treasurer, as above.

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By saving coal, we mainly mean that it gives more heat from the same coal. You may not burn any less coal; but you will have every room of your house filled with a delightful tonic health heat. A heat that is noiseless, leakless and dustless.

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It saves much digging up after plantings are planted.

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Two years' practical and theoretical course in Horticulture. Next entering class for diploma students January 15, 1918. Fall course of ten weeks for amateurs begins September 11th. Write for particulars. Early registration advised.

Elizabeth Leighton Lee, Director, Box 105

LATE FALL PLANTING

May be done in the North if the plants are rightly cared for. This refers to hardy perennials and bulbs. Deciduous shrubs and trees, if banked may be planted until winter.

When perennials are set late they should be in well-drained soil and protected the first winter. Tulips, narcissus, crocuses, when set late in the North should be covered enough to keep them from frost the first third of the winter, so that the new roots may form. This covering should be removed early in spring.

Ask for Horsford's spring and autumn lists, also Catalogue M
F. H. HORSFORD, Charlotte, Vt.

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Real Bronze Colonial Designs From \$3.50 Up

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GARDEN

MAGAZINE

EMBER 1917

PRICE 25 CENTS

In This Issue:

Christmas Gifts for the Garden

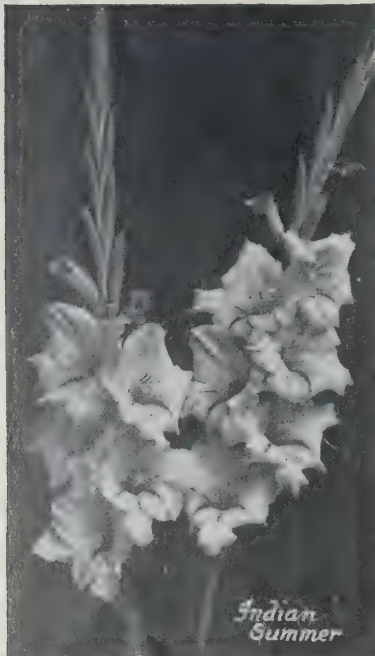
Storing Tender Flower-Roots

Encouraging the Birds



The Spirit of Christmas 1917

Kunderd's 1918 Catalogue of New Gladiolus



A. E. KUNDERD

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It is handsomely illustrated and contains the largest and finest collection of gladiolus in the world and the best cultural notes, either for growing prize or show flowers, or the usual garden culture. Many grand new varieties of our own will be offered. This catalogue is free.

Address the originator of the Ruffled Gladiolus.

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This Christmas remember your friends with a box of choice Gladiolus bulbs. Think of the pleasure they will get from the beautiful flowers, opening in profusion all summer long, each bloom adding a link to the chain of friendship.

The "Christmas Collection" contains twenty-five choice bulbs—enough for a good small garden. They will be packed in an attractive box, a card bearing your name will be enclosed, full growing instructions will be included, and the whole sent **postpaid**, to reach the recipient just before Christmas.

- 5 America. Large flowers of lavender pink.
- 4 Baron Joseph Hulot. Rich violet.
- 4 Mrs. Frank Pendleton. Flushed salmon-pink.
- 4 Mrs. Francis King. Deep salmon-pink.
- 4 Peace. Giant white, with lilac feathering.
- 4 Halley. Delicate salmon-pink; creamy blotched.

25 Bulbs Postpaid for \$1

My new Gladiolus catalogue tells about many other choice sorts and shows several varieties in natural colors. Send for a copy.

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A COLORADO GARDEN

OF ALPINES AND ROCK PLANTS from the rugged slopes of the Rocky Mountains will condense more joy into a small space than any other style of Fall Gardening. The list includes rare and choice varieties of Anemone, Columbine, Clematis, Delphinium, Gentian, Evening Primrose, Pentstemon, Yucca, Hardy Cacti, and many others not commonly cultivated, all hardy and easily grown.

Besides native plants, we grow and catalogue all the best ornamentals for the Northwest, including trees, shrubs, evergreens and hardy flowers. Either catalogue free.

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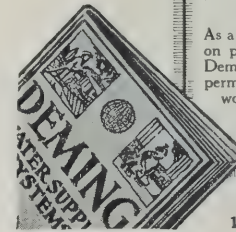
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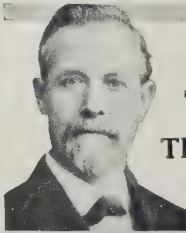
As a result of 35 years of specialization on pump designing and construction, Deming Systems are as simple, sure and permanent as long experience, expert workmanship and carefully chosen materials can combine to make them. *Catalog on Request.*

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Softens the angular lines of house foundations, increases the intrinsic value of the home, besides the pride afforded in beautifying your property. Ask for Catalogue No. A. 3

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WHEN you want some especially fine evergreens, the kind that have been neither coddled nor forced, but possess that much-sought-for sturdy constitution, resulting from growing in the rugged climate of New England; then come to us. No finer trees can be found anywhere, or more reasonably priced. *Send for Catalogue.*

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North Abington, Mass.

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NOT just the ordinary run of shrubs, but the full-rooted, sturdy topset kind, that you can depend on. As for Rhododendrons, we have an exceptional assortment of both native and imported hybrids. You will say they are surely priced consistently. *Send for Catalogue.*

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The Garden Magazine

VOLUME XXVI

DECEMBER, 1917

NUMBER 5



AMONG OUR GARDEN NEIGHBORS

Experimenting With Hunnemania.—Every year, I try a new (to me) flower and am so delighted with my trial this year that I want to share my find with all the flower lovers who read THE GARDEN MAGAZINE—perhaps they have grown Hunnemania and, therefore, know all about it, but I will tell my results just the same. Several years ago at the Flower Show at the Grand Central Palace, New York, Max Schling, the 59th Street florist, had a bunch of these beautiful flowers in his exhibit and I at once felt I must have some. I planted an ounce of seed in 1916 but not one came up. Last fall I planted another ounce (from another seed house) in my cold greenhouse and two plants appeared after several months. This spring I made up my mind I would try again and bought another ounce (from a third seed house). I soaked them all night (putting them in hot water) and planted them the next day in the bed in which Nigella Miss Jeykll had grown the year before and many self-sown seeds came up with the Hunnemania. It's my belief that every seed germinated. The bed has been one of the most beautiful in my entire garden, and now in the bare days of October I am still picking both kinds of flowers every few days. The color of the Hunnemania is not only a wonderful yellow but the flowers last at least a week, while a Poppy does not last a day.—*Frank H. Presby, Montclair, N. J.*

Tulips and Daffodils Planted Late.—One of the vicissitudes of war that the gardener meets, his inability to secure the customary supply of Dutch bulbs at the usual planting time, need not dishearten him so far as Tulips, Crocuses, and Daffodils are concerned. They may be planted as late as January first and bloom satisfactorily. A few years ago I received as a gift at Christmas time a fine package of bulbs, including Darwin Tulips, named Hyacinths, a mixed assortment of Crocuses, and 100 bulbs of Poet's Narcissus. There was five inches of snow upon the ground and I had very faint hopes for success when I carried the entire assortment to the banks of a little brook that winds through my garden, and planted them. The snow was scraped away with a hoe after which the bulbs were inserted singly and in clumps under the frozen top-soil among the Willows and Dogwoods bordering the stream, and right down to the glassy ice mirror. The snow lasted a few days,

then came two weeks of warm weather during which the bulbs had time to get a hold upon the soil. In the spring I was somewhat surprised to see the Crocuses showing their pretty blossoms with the budding Willows. The Tulips and Daffodils followed, later, but no less beautiful. The Hyacinths did not make satisfactory bloom; the flower stalks were short and the blossoms were crowded together. I think that they failed to make the root-growth required.—*Buford Reid, Osceola, Ark.*

The Topeka Hollyhock Chain.—We have realized so much pleasure through the free distribution of a large quantity of Hollyhock seed to my patrons and friends that I am more than half inclined to extend the privilege to those who may not be fortunate enough



The easily grown Hollyhock was selected to start a chain campaign for civic improvement in Topeka

to enjoy the *privilege* of living in Topeka. I first brought from my summer vacations a small quantity of seed offering them to those who came to my office; and it was a success, as they asked for more. Requests later came from away beyond the transfer man's "field of operations" much to my satisfaction, however. This caused me to think out a plan by which one might interest flower lovers in other cities by offering seeds, and through them influencing the Civic Improvement clubs or committees to take up this matter of systematically decorating the alley fences and unsightly buildings with a perpetual screen of varying colors as it was in Topeka all June and July. To all comers who sent postage (or for nothing if they can not afford that) Hollyhock seeds are given on the promise that: From the "First fruits" they give Three Seeds for Three years or more to Three Friends, flower-lovers. As one seed has produced 85,000 of its fellows, there are immense possibilities in the Topeka "Hollyhock Chain" should it be acted upon by the cities in general. Hollyhocks are hardy, grow in almost any soil, ordinarily require no second planting and bloom and seed abundantly. The "Neighbors" might start a Civic Improvement chain in each of their own towns with but a modest cost compared with the splendid results possible to attain through the systematic planting of one kind of seed throughout the cities. Address (with or without postage), *Clarence D. Skinner, Topeka, Kansas.*

Where to Obtain Rare Plants.—In a recent number of THE GARDEN MAGAZINE you speak of Chinese Bush-cherry, also the Spring Cherry and *Morus acidosa*. From what nurseryman may these be procured.—*J. E. Cannaday, Charleston, W. Va.*

—The Chinese Bush-cherry (*Prunus tomentosa*) can be obtained from Bay State Nurseries, North Abington, Mass.; Framingham Nurseries, Framingham, Mass.; F. & F. Nurseries, Springfield, N. J., and probably others. The Spring Cherry (*Prunus subhirtella*) is not listed by any dealers at present to my knowledge. But try such large growers as Meehan, Moon; and Andorra. It is fairly common in gardens about Boston, and seed may perhaps be obtained in July from the Arnold Arboretum. The new Mulberry (*Morus acidosa*) can as yet be gotten only through the



The home made bird bath (above) and its makings. Household utensils employed

Arnold Arboretum, Jamaica Plain, Mass. It is to be hoped that nurserymen will soon offer it as a food plant for children and birds.—S. F. H., Mass.

International Garden Club Journal.—The first number of this new quarterly is quite pretentious, well printed on woodcut paper, and comprises 288 pages. It gives a brief history of the organization itself and describes in detail the grounds and rose gardens which are being developed at the Club's headquarters at Bartow, New York City. The rest of the contents consists chiefly of reprints of papers that have been presented to the Royal Horticultural Society of England and are already available in the *Journal* of that institution; only two of these seven articles are original. The editor's foreword explains that the publication is offered "as a contribution to the advancement of gardening in America," and also "to reflect gardening as it is practised in America." The only contribution in this number which would seem to carry out this purpose is his own (very instructive article) on "Informal and Wild Gardening." American gardening has suffered seriously in the past from having foisted upon it, under the imprint of an American publication office, material which was entirely foreign to domestic conditions; and it seems a pity that an organization evidently able to make a creditable production should start off in a manner implying that there is nothing that can "advance" or "reflect" gardening as it is practised in America.

Streptosolen Jamesoni as a Standard.—Many greenhouse plants are amenable to culture in standard or tree form. These include Geraniums, Fuchsias, Hydrangeas, Lantanas, Heliotropes, Marguerites, Chrysanthemums, Genistas, Buddleias, and last but not least the old Streptosolen Jamesoni. Cuttings root readily and should be potted along as they need it and the plant securely staked, all side growth removed and the top pinched, cut when 24 to 36 inches high. Very nice standards may be had within a year in 7-inch pots, but it takes two or three years to produce strong standards which have stems of suf-

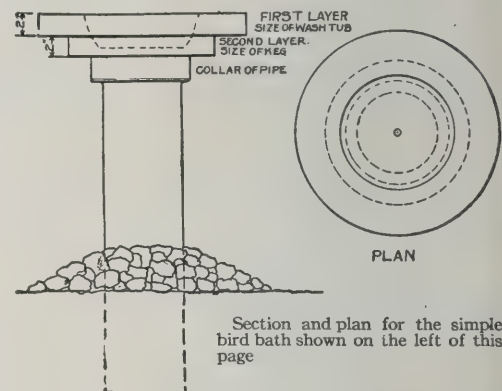
ficient stoutness to stand erect without staking. These Streptosolens flower in February and March in an ordinary greenhouse, their pendulous shoots carry terminal racemes of rich orange flowers, and the plants are both beautiful and graceful when in bloom. I have used well flowered plants on large dinner tables and nothing could have been more effective. The plants should be rested somewhat through the summer and pruned back early in August when any repotting or top dressing can be done.—W. N. C., Brookline, Mass.

A Home Made Bird Bath.—We selected our largest galvanized laundry tub as a basis for the outer rim. It measured twenty inches in diameter across the bottom. Then we inverted a shallow wash basin in the middle of the tub, being sure that it was exactly centred. This was easy, as the bottom of our laundry tub is decorated with a series of ridges in concentric circles. In the centre of the wash basin we had cut a small round hole, just large enough to admit a short piece of water pipe, or rubber hose, anything to provide a means of emptying the bath when in use. We were now ready for the first layer of concrete. This was mixed in a proportion of about two parts sand to one of cement with water enough to make pretty wet—of easy spreading consistency. Before putting in the concrete we made sure that the tub was standing in an absolutely level position. Then we spread a layer of concrete evenly in the bottom of the tub, surrounding the inverted basin, and making the concrete about two inches deep. This was allowed to stand for a day or two, until partially set, but not hard. When it seemed firm enough to bear the second layer we arranged the form for that purpose by inverting a bottomless mackerel keg on the first layer, centring it by careful measurement. Then the surface of the first layer, inside the rim of the mackerel keg, was slightly scratched and roughened—it was not too hard for that—to give the new layer of concrete a better chance of adhering. The



Streptosolen Jamesoni; an old time greenhouse favorite with orange red flowers

second layer, mixed in the same proportions as the first, was then spread inside the keg, to a depth of two inches, thus covering the wash basin, and surrounding the piece of upright pipe in the centre. This was allowed to set until perfectly hard and dry. We poured water over it gently, once or twice after it was partially set, that it might not set too dry, and be inclined to crumble. This stood in the form for several days. The bath proper was now complete. It remained to place it on a pedestal, and for this we used a piece of drainage pipe, one with a collar about two inches deep and nine inches across. The pipe was planted in the ground, collar up, and around the bottom we piled some loose rock to steady it and give it a good base line. The bath was removed from its form, first



removing the piece of water pipe by twisting it gently, then lifting out the keg, then slipping out the whole structure, by gradually tilting it out of the tub. We set it right side up in the pedestal, loosened the tin basin from the centre leaving a shallow basin of concrete with a hole in the middle, and a four inch rim, or brink all around. A rubber stopper was placed in the escape hole, and the bath was ready to be filled. The drainage pipe pedestal was painted over with a mixture of white concrete paint and cement, about half and half, mixed with water to the consistency of paint. Later on, ivy was planted at the base of the pipe, to twine among the loose rock, and around the column.

Of course any one will understand that the requisites here mentioned as a form for the bird bath are by no means imperative. We explored our basement and used what we could find. The laundry tub could hardly be excelled as a foundation for the first layer, and was in no way injured; it is still doing duty as a laundry tub. Instead of the wash basin one could substitute a shallow wooden chopping bowl, or any bowl shaped utensil, not too deep, and not more than twelve inches in diameter. The finished bath should have at least a four inch rim around the basin. Instead of the mackerel keg any round form could be used—a cheese box, an old flower tub—just so it is bottomless and somewhat smaller than the laundry tub.—Cleo L. Nettles, Louisville, Ky.

Hardy Primulas for Unheated Greenhouses.—There are many beautiful hardy spring flowering plants whose flowering season can be advanced several weeks by lifting clumps ere the ground freezes up and planting in even an unheated greenhouse. A few good varieties for this purpose: *P. denticulata* and its form *Cashmeriana* are of the first to bloom, attaining a height of 18 to 24 inches. *P. frondosa*, *P. cortusoides*, *P.*



One of the "capitate" Primulas (*D. cashmeriana*) a gem for the cool greenhouse, flowering in early spring. Flowers lilac

rosea floribunda, *P. elatior* in a variety of colors of which I consider the Giant White and

Yellow forms the best; the true English Primrose (*P. vulgaris* also called *P. acaulis*), *P. Sieboldi*, and *P. japonica*. The forcing *P. elatior*, commonly known as Polyanthus are of particularly easy culture and will bloom for many weeks.—*W. N. C., Brookline, Mass.*

Comment on the Broomstick Scratcher.—It was interesting to read your correspondent's note on "A Broomstick Scratcher," page 40, of the September issue of THE GARDEN MAGAZINE. There may be many a reader who wants the results of just such a tool as that and yet would hesitate to make one for himself. Won't you let it be known, therefore, that there are at least three good tools in the market, for sale at all seedstores of any standing, that will fill the bill. One is the Mehler Handy Gardener; another the Magic Weeder, with either a short or long handle; and the Norcross Cultivators. I have used all three and found them satisfactory. The order in which I have mentioned these means nothing as I wrote them as they came to my mind. Another tool, but one I am less acquainted with, is the Pull Easy Cultivator which is hinged in the middle like a pocket rule and adjustable to any width row. All sell for less than a dollar and are well worth the amount invested.—*S. F. Willard, Jr., Boston, Mass.*



The English Primrose is easily brought into bloom in an unheated greenhouse. Flowers pale yellow

A Touch of Blue in the Fall Garden.—I have always lots of Chrysanthemums and the hard frosts have not injured any of my plants of the Early Flowering Singles or Pompons; neither, however, has the frost hurt my beds of *Scabiosa japonica*, *Aconitum Wilsoni* or *Aster tataricus*—all fine and worthy of growing. A fine touch of blue at this time of the year (end of October) is something I have never had before.—*Frank H. Presby, Montclair, N. J.*

Making the CHRISTMAS Dollar Buy a Dollar's Worth

OH, THAT! Why, er—That's a *Christmas Present*." Such was the final explanation of the use of a certain unrecognizable article displayed in a department store, when the shopper finally appealed to the floorwalker. And, indeed, how many of the articles that masquerade under the name of "Christmas Presents" can ever be put to practical use?

Ask yourself seriously at this time if you have ever made the best of that season-born opportunity called Christmas, when it comes to selecting logical gifts for the garden hobbyists among your inner circle of friends! The hobbyist is a person full of sentiment about one thing—his hobby. Since Christmas gifts are sentiments expressed in a substantial form, can you imagine a shorter cut to a hobbyist's heart than to present to him something useful in his favorite pastime?

Be a "spug." Turn your Christmas dollars into channels that will increase both the spiritual and material happiness of the recipient of the gift and his esteem of your judgment. Convert your Christmas money into definite objects designed to be of most practical service for a long time to come. Such Christmas presents as are suggested here, will, first of all, convince your gardening friends that you take their hobby seriously—the greatest tribute you can pay them; secondly, by selecting gifts that appeal to their sentiment, besides being of definite usefulness, you are correctly interpreting the spirit of these momentous times when careless spending is a crime, and thoughtful spending represents sound investment.

Invest your Christmas funds in gifts that

live or that help make living more worth while. Never before has the world been as much in need of the peculiar benefits derived from gardening as at the present time. The alluring beauty of the ornamental garden—be it one of trees, shrubs or plants—helps humanity over many trials and disappointments. There is a companionship to be found in the calm presence of the different forms of plant life for which we look elsewhere in vain.

On the other hand, the gardener who works for material returns, will appreciate any gifts that make those returns more certain. A collection of vegetable seeds you yourself have found dependable; a tool that will reduce labor or make it easier; books that will point the way to better gardens; garden furniture that makes living in the garden a true recreation—these are just a few of scores of practical garden gifts which present conditions lift above the commonplace to a position of applied patriotism. Which of the following will best serve the needs of one of *your* garden friends?

Nursery Stock. Live Christmas Trees in tubs (to be planted out later and to become permanent beautifiers). Groups of Evergreens (for screens, hedges, windbreaks, or dwarfier kinds for foundation planting, beds or borders). Large Specimen Evergreens or Shade Trees (which may best be moved or transplanted while the ground is frozen). Groves of Trees with attractive foliage; Home Orchards of fruit trees or berry plants; New and Rare Hardy Plants, Roses, Chrysanthemums, etc., to be presented now and delivered in due time.

Seeds and Roots. Collections of Vegetable Seeds (made up of kinds you have tried

and found not wanting). Flower Seeds. Lily-of-the-valley clumps or pips. Roots of such vegetables as may be forced in cellars or under glass, (like chicory, rhubarb, seakale.) If in France, a box of sugar or a bag of flour is considered a distinctly practical and patriotic gift, why not consider such things as will help in food production, in a similar light?

Bulbs for Winter and Summer Bloom. Gift boxes of Canna, Dahlia or Gladiolus bulbs. Narcissus or other winter-flowering bulbs, complete with moss, pans, etc., ready to be combined and started on the road to bloom.

Potted Plants and Decorations. House plants of all kinds, Ferns, Fern Balls, Palms, Azaleas, Spireas and other seasonable plants; wreaths of Christmas Greens, Smilax, Holly, Mistletoe, or any of the cheer-spreading visitors from the woods.

Garden Implements and Accessories. Wheelhoes (to serve as snow plows during the winter). Spray pumps (for active winter spraying or to wash the motor car, spray the chicken house, or as a fire extinguisher). Tools of all kinds (hoes, rakes, trowels, pruning shears, knives, saws). Hotbeds, greenhouses, sash, sprinkling cans, rubber hose, pots, pans, jardiniers, flower stands, etc., etc.)

For Inside and Outside the Garden Home. Porcelain vessels for flowers, Bayberry candles, pottery of all kinds, garden books, garden furniture, pergolas, sundials, gazing globes, birdhouses, weather vanes, etc., etc.

Make this a truly patriotic Christmas by selecting truly useful and practical garden gifts for your practical gardening friends.

THE MONTH'S REMINDER

DON'T GET OUT OF THE TRENCHES TILL CHRISTMAS!

THE month of dreariness—and cheerfulness! While December is the month when Loki—god of the hearth—holds sway, the man or the woman who sticks to indoors is missing not only the out-door fun to be had in one of the really best months in the year, but a great many garden opportunities as well. There is just as much to be done now in the open as there is inside.

Make the Last Days Count!

ATTE^ND first to those things which should be done before the ground freezes hard, such as finishing up any fall planting jobs. Often it is impossible to get some of the hardy Lily bulbs before freezing weather and this year the bulb supply generally has been irregular. Prepare the ground just the same, covering it with strawy manure or other mulching, so that the bulbs can be put in when they do arrive, *even if it is January.*

Root crops, for outside storing that have been left in heaps with a first covering of straw or leaves, will need attention. Put on a covering of soil two or three inches thick, leaving small openings if there is any indication of "sweating."

Don't Get Out of the Trenches Till Christmas!

EVERY day's work that can now be put on, work otherwise done in spring, will be as good as two saved from the busier time. Keep spading or trenching every square foot of garden that is not covered with a winter crop. Go two spades deep, and work into the top "spit" all the manure you can get. Soluble fertilizer must not be put on now, however. There is no necessity of inviting trouble next season by harboring it over winter in your own door-yard; so make a final inspection of the whole place with the specific purpose of destroying every possible source of infection. Cut out old canes of berry bushes; search currants and gooseberries for borers; destroy cocoons and egg-masses anywhere and everywhere and clean up old flats, pieces of board, bits of rubbish of all kinds.

And last but not least—*get after your neighbors, too!*

Get the Winter Ammunition Ready

MAKE ready now for later forcing of rhubarb, asparagus, witloof, and strawberries. Store the chicory roots in a cold cellar (in sand) or in a pit, to be used as wanted; dig around the rhubarb and asparagus roots, so that the whole clump will be loosened; take up and pot in large pots strong-crowned strawberry plants, water and keep dormant in a cold frame till early spring, when they can readily be started several weeks ahead of those outside.

Moving in Midwinter This Year?

NOT your household goods, but a tree or large shrub. Too big to transplant? Not if you get it while its feet are frozen and it can't kick! Transplanted trees die because the required supply of water is interfered with by the disturbed roots. Therefore, transplanting in winter with the roots and earth a solid frozen mass and when there are no leaves or new growth to support is plain common sense. Before ground freezes too hard, dig around tree carefully, making a clean, sharp cut across any far reaching roots and leaving as large a ball as can be handled. Burlap worked around this will help hold the

soil in place. Get another hole ready, in the desired position. Prune the top back when growth starts in the spring.

The Secret of Successful Winter Work

GET out the pruning shears: If buying a new pair, be guided by quality rather than price—a spring that cannot drop out accidentally, and handles that can't pinch your fingers are not mere luxuries. A removable blade is a worth-while feature, saving the price of a new shears in a few years; and a nut that can be adjusted to keep the joint tight is important.

If you are a beginner, look up back numbers of THE GARDEN MAGAZINE (December, 1916, is one) or invest two dollars in Kains' new book "Principles and Practice of Pruning."

DO THIS MONTH

1. Look over your records of 1917.
2. Begin thinking of the 1918 Patriotic Garden.
3. Give final clean-up for all insects and diseases.
4. Take up roots for winter forcing.
5. Get ready for winter transplanting.
6. Bring in bulbs for forcing.
7. Attend to winter pruning of fruit-trees and shrubs.
8. Give the first dormant spray.
9. Start "stock" plants into growth.
10. Fix up flats and tools.
11. Clean old flower-pots and tubs.
12. Get the cutting-bed ready.
13. Plant flower-seeds for spring bloom.
14. Before ground freezes forward spring work wherever possible.

Remember that the first law of pruning is, "the less the better, conditions permitting." [And, by the way, remember that the Editorial Department of the GARDEN MAGAZINE is prepared to assist you in the purchase of any books you may desire].

Winter spraying is every bit as important for the small place as for the commercial orchard. The orchard man who does not spray is utterly outclassed, in fact he can't be found, yet the small place owner who does spray is the exception rather than the general rule. *If you want good fruit, you must spray*—and the winter or "dormant" spray is about as important as the summer spray. It pays also to spray shrubs and other plants that are subject to disease or scale, as a precaution in keeping the garden sanitary. No expensive outfit is necessary. If you have no sprayer get one without delay. We have used compressed air sprayers like the "auto" and small affairs that fit on to the garden hose and use cartridges and have good words for both. The advantages of the winter spray are that the solution can be used at greater strength than in summer time and it relieves the labor pressure in the busier season. Several different dormant sprays are in use including lime-sulphur, kerosene emulsion (winter strength), miscible oils, and others. For the small place, it is generally more satisfactory to get a ready-to-use commercial preparation, than to attempt home mixing.

Get the "Stock" Plants Under Way

IF YOU have stock plants—which may be little more than roots or stubs—on hand from which to obtain a supply of cuttings for early spring, take them from storage under bench, in cool house or frame and start into growth. A good strong firm growth is essential to first quality new plants, so give just as much care and attention from now on, as if they were for the choicest spot in conservatory or window garden. Repot them, giv-

ing a through cleaning and overhauling, and fresh soil. If there are old scraggly worn-out tops, cut back severely. But guard against giving too much manure or nitrogenous fertilizer, which will result in too rapid, soft growth. Plenty of sunshine and plenty of room and fresh air, on the other hand, are desired, as all these make for firm, short-jointed growth. Temperature should be sufficient to assure steady growth, but not to force the plants.

Bring In More Bulbs for Forcing

ALL bulbs in pit, cellar, or frame, that are to be forced for winter bloom, should have made root growth enough by the end of this month to be brought indoors to heat. Start them in "succession" lots, at intervals of two weeks or so. Begin with very moderate temperature, and increase both temperature and water as top growth develops.

When the Days are Stormy

IT IS not a bit too soon to begin getting one's greenhouse in order, against the spring work. In a very few weeks flats and pots and seed pans will be again in demand. Soak old pots for several days, in two or three changes of water, and rub over with sand, to remove dried moss or earth. White-wash or paint tubs or wood plant boxes that are to be used over again. Get new, fresh sand if possible for cutting beds. Or clean the old sand with a weak solution of formalin. After standing a day or so, "wash out" with clean water by putting the treated sand in a pail or box and shoving the hose down into it, letting the water run slowly for some time. Or the sand may be baked. Clean medium coarse sharp sand, such as is used for concrete work, is just the thing for cuttings.

Flowers for Early Spring

DON'T run out of flowers indoors before the outside ones are coming on. Stocks, Mignonette, Clarkia, and a score of other good things may be sown now to keep a full supply when the regular "winter flowers" are beginning to go by. Another easy way of having early flowers in advance of the outdoor bloom is by taking branches and twigs of the common flowering shrubs, putting them in water and occasionally spraying them and keeping them in a warm and sun-lit place. Judas Tree, Japan Quince, Weigela, Pearl Bush, Golden Bell, Mockorange, Bush-honeysuckle, Flowering Almond, Crabapple, Van Houttes' Spiraea, Lilac, Wisteria—all of these may be used in the manner suggested. And, of course, the Willows; any of them will push out their downy buds under the slightest stimulus.

Get Your Garden "Dope" Ready!

NEXT month you will once again be planning your vegetable and flower gardens, and the January GARDEN MAGAZINE will open the new year's new Patriotic Garden campaign by serving you to its best ability. One special feature will be a new planting scheme for the home garden based on actual observations of last season's gardens. We shall tell you how to employ modern scientific industrial management to the home vegetable garden. All last summer careful records were kept to ascertain just how few plants of a given kind, just how short a row was essential to supply the requirements of a definite number of people. All this, with succession planting charts will be laid before you next month.

Encouraging the Birds

ALICE LOUNSBERRY

BIRDS are the pampered darlings of the hour. From being so indifferently treated by mankind that they fled before his footsteps, they have become the most catered to and sought after creatures of the open. Over the whole country sanctuaries for the feathered world are steadily increasing in numbers; while alone in the vicinity of New York City three of notable proportions have been established recently. Smaller and more simple bird gardens have as well become a reigning interest.

The farmer who a few years ago watched, with surly humor, the birds feeding in his grain fields, nipping holes in the sides of his largest cherries, feasting royally in his strawberry patch, is now, through increased knowledge, content to share with them the products of his labors. He has learned that his one-time use of a shotgun and his ungainly scare-crows were merely effectual in driving away the helpers with which Dame Nature had provided him. For as the birds flew off to less man-governed places the insects began to flourish unhindered, driving sleep and prosperity away from whole agricultural districts. To-day it is believed that a single martin will consume, as his daily diet, a million mosquitoes; nesting boxes therefore are hung up for his occupancy. In fact bird protection in various forms is pursued for ethical and artistic reasons as well as for its commercial benefits.

Not all those interested in the preservation of native bird life, however, can set aside ten acres or thereabouts for the building of an important sanctuary, although it fortunately happens that the greater number of country dwellers are able to add to their possessions a bird garden.

From the beginning fashion has played its part in gardens, no less in America than in other countries. The bird garden, the latest desideratum, has followed

perhaps in the wake of the naturalistic garden to which many landscapes have an especial suitability. Yet so new is the conception of such an enclosure that the question is frequently asked: "What is a bird garden; in just what way can it be built?"

THE GARDENER'S PARTNERSHIP
WITH NATURE'S HOSTS FOR THE
FIGHT AGAINST INSECTS.—PLANTING
TO ATTRACT THESE ALLIES

A BIRD garden, whether so large as to be called a sanctuary or so small as to be merely a shelterwood, is an enclosed place in which birds are protected from their enemies; provided with food throughout the year; and wherein those that nest in the open and those that nest in holes are given opportunities for breeding.

Of course before starting a bird garden the character of the land must be closely studied; a swampy thicket would require different treatment from a hilly district or from one composed of flat meadows. The birds of each locality must be observed, also it must be learned which others are likely to be attracted, once the chosen site is made attractive to them. Birds long absent from a neighborhood will find their way back shortly after conditions that make their lives comfortable have been provided.

But no thought of a sanctuary or bird garden should be entertained unless there is complete willingness to protect its inhabitants from their enemies, and in the personalities of household cats are found their most implacable foes. Weasels, rats, and martens also disturb nesting birds, but their influence is slight in comparison with that of the cat which prowls by night and by day insatiable in his desire. Traps that are set for such should in every case be well hidden; barbed wire is also used in various ways as a menace and hindrance to his movements. Still neither of these devices is equal to the determination of a nine-lived cat.

Necessity therefore has led to the invention of a cat-proof fence. It is made of wire mesh having a hooded arrangement at the top and so shaped that should the cat climb sufficiently high and attempt to leap over, he would be thrown back to the ground. To enclose a bird garden with such a fence is the first important step in its building.



Feeding her young. Where hosts of insects go



Berried shrubs that provide food for the birds are also gratifying objects in the garden in winter (*Viburnum opulus*)

BIRDS themselves are winged voyagers. They like to come and go ad libitum. The seething sentiment of migration sets them on the wing. No sanctuary has for its purpose the restraining of their freedom. At will they can soar up into the air and pass over the fence and away. Yet there are birds that seem to grasp immediately the meaning of a fence. At Baron von Berlepsch's preserve in Germany, the most scientific sanctuary in the world, many birds consistently make their entrance and exit through the time-worn holes in the gateposts of the old castle that guards the entrance. At one of the sanctuaries in America the gateposts have had holes drilled in them and through these openings the birds slip in and out constantly. The arrangement adds greatly to the romance of the spot.

AS SOON as the fence is erected, shutting off the enclosure, trees or thickets of high shrubbery should be planned like background lines hiding it from view. By keeping such growth on the edges of the garden it is given form and the same sort of definiteness that a hedge lends to a flower garden. Often there occur natural thickets that can be left untouched. The undergrowth of topped trees, when these are so handled on account of view or because of certain proportions desired in the garden, should be preserved, as apart from its value for game birds it offers to others natural breeding places.

In fact brushwood piles should form a feature of both coniferous and deciduous thickets as it is such places that many song birds, nesting in the open, choose for their homes. Shrubbery can also be so pruned as to make it especially habitable to birds; and branches tied together often attract the round, shrewd eyes of those on the lookout for nesting sites.

NATURALLY the individual peculiarities of the shrubs used in a bird garden must be taken into account. In general those that stand well severe pruning are to be favored since the inducement they thus receive to throw out new growth freely is apt

to result in admirable recesses for birds. Shrubs for shady places, likewise those that demand full sunlight must be included and also those which by means of thorns act as enemies to vermin. The Shadbush, Mountain Ash, the Tartarian Bush-honeysuckle, the Elder and the Cranberry tree (*Viburnum opulus*), are all well known, suitable, and

hips of which birds devour, should be given entrance. The Mulberry furthermore has the credit of having its fruit approved by more varieties of birds than that of any other small tree. The Common Privet (*Ligustrum vulgare*) is useful to fill in gaps in the thicket wherever such are likely to occur. The European Beech (*Fagus silvatica*) which holds its foliage later in the autumn than the American species is suitable for the rich soil and decorative sections of the garden. The Hornbeam (*Carpinus carolina*), which likes to grow near water is attractive, when the garden includes a stream, to plant along its banks. *Ilex verticillata* with its red winter berries, *Juniperus virginiana* (Red Cedars), pollarded Firs and Norway Spruces, the latter admirable in shape for a bird shelter-wood, are among the most important of the evergreen trees that should be arranged like accents among the deciduous shrubbery.

And these mentioned trees and shrubs are notably those familiar along roadsides, as escapes from cultivation, as the inhabitants of borders of woods or haunting the banks of streams. They are not classed among costly rarities. To form of them a shelter wood is within the ability of the greater number of country home dwellers; while to draw the birds into friendly nearness is to add to the joy of life. Any of these plants may be as safely transplanted during the open spells of winter as at any other time.

IT IS not only marsh birds that require water in the vicinity of their nests. This is true of them all. Therefore one of the first considerations in bird garden building is the water supply. When the garden is small, of level, dry ground having no lake, spring or stream, this need can be met by a fountain; again it can be supplied by numerous bird basins. Very early in the morning birds are astir for food and drink. In the successful bird garden they must not be disappointed.

Innumerable are the bird baths and fountains now on the market. The practical ones,



The bird garden is best enclosed and appropriately designed houses for particular birds may readily be purchased

SHRUBS AND TREES ATTRACTIVE TO BIRDS

MARCH, APRIL—Thunberg's Barberry.
 JUNE—Shadbush, Juneberry.
 JUNE, JULY—Red-berried Elder, Ruprecht's Honeysuckle, Wild Red Raspberry.
 JUNE, JULY, AUGUST—Blueberries, Black and White Mulberries.
 JULY—Wild Strawberry, Thimbleberry, Wild Red Cherry, Wild Black Currant, Morrow's Honeysuckle, Bush-honeysuckle, Tartarian Honeysuckle, Mahaleb Cherry, Mountain Currant, Buffalo Currant, Japanese Oleaster, Japanese Viburnum, European Bird Cherry, Goumi.
 JULY, AUGUST—Wild Sarsaparilla, False Spikenard, Sassafra, Highbush Blackberry, White-fruited Dogwood, Smoke Tree.
 AUGUST—Black Cherry, Choke Cherry, Purpus's Dogwood, Wayfaring Tree, Arrowwood, Pubescent Viburnum.
 AUGUST TO MARCH—European White Birch.
 AUGUST, SEPTEMBER—Black Birch, Gray Cornel, Silky Cornel, Red-osier Dogwood, Alternate-leaved Cornel, Beach Plum, Common Elder, Dewberry, High Blueberry.
 SEPTEMBER—Climbing Bittersweet, Moonseed, Cranberry-tree, Arrow-wood, Black Haw, Witherod, Sweet Gum, English Fly-honeysuckle, Canby's Viburnum, Thorns, Sea Buckthorn, Common Barberry.
 SEPTEMBER TO MARCH—Crabapple.
 SEPTEMBER TO JUNE—European and Japanese Larches.
 SEPTEMBER, OCTOBER—White Thorn, Tupelo, Sour Gum, Northern Fox Grape, Silver Thorn or Oleaster.
 SEPTEMBER, NOVEMBER—Sheepberry.
 SEPTEMBER, WINTER—Flowering Dogwood, Hackberry, Nettle-tree, Spice Bush, Snowberry, Inkberry, Black Alder, American Holly, American Mountain Ash, European Mountain Ash, Red Cedar or Savin, Common Juniper, Poison Ivy, Checkerberry, Partridge Berry, Pikeweed, Barberry, Common Greenbrier, Bayberry, Privet or Prim, Virginia Creeper, Common Nightshade, American Hornbeam, Cockspur Thorn, Wild Rose, Staghorn Sumach, Dwarf Sumach, Smooth Sumach, Buckthorn.
 OCTOBER—Dogwood, Crabapple, Spindle-tree.
 NOVEMBER—Frost Grape, Chicken Grape, Matrimony Vine.
 DECEMBER—Sweet Birch.
 FALL, WINTER—Weigela, St. John's Wort.

(Compiled from *Journal of the N. Y. Botanical Garden*, February, 1917.)

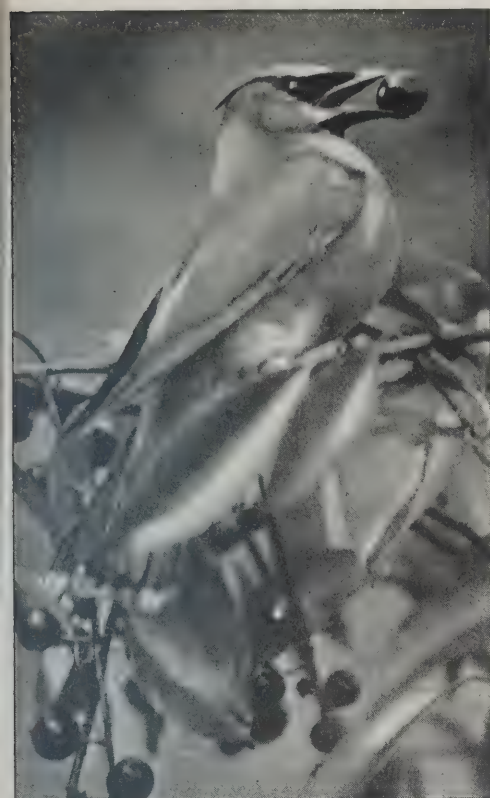
decorative in a bird garden. The White or May thorn (*Crataegus oxyacantha*), with its large, spikelike thorns is not to be overlooked. The garden gooseberry, also rich in spines, is valuable for this reason in addition to that of its fruit. Barberries, both the common and Japanese species, are excellent for low hedges; and the native *Rosa carolina*, the



Many insects wanted for one meal! (Indigo bird)



He likes currants (Brown Thrasher)



Caught in the act! A small price to pay for the great rewards reaped in insect destruction (Cedar Bird)

however, are those in which the water is not so deep that there is danger of the bathers drowning and which have for utility a rim or cross-section so arranged that the birds can perch thereon while drinking.

The feature of endurance in a bird garden, built on ground other than swampland, is often the fountain. As soon therefore as the fence and the boundary lines of trees and shrubbery are set this important bit of furniture should fall under consideration. Happily it is one that permits of individual expression. The central portion of the garden is often the place where, as in the selection of the fountain, the personality of the owner sounds the note of decision.

A FEW bird gardens show the whole naturalistic in treatment, the centre as well as the edges developed in masses of shrubs and plants bearing berries and seeds on which birds love to fatten. Informal paths, taking unexpected curves are made through such gardens and the open spaces that occur left in untrimmed turf. A garden of this nature, however, is apt with time to develop into a veritable thicket or jungle, one in which the human element experiences similar sensations as when visiting a wild woodland.

A design more generally pleasing is that which keeps the centre of the garden somewhat formal, perhaps after the plan of an old English or Colonial garden, and which is enclosed with a low hedge through which vistas open into the more dense planting beyond. The birds learn to pass blithely through these openings and it is a pretty sight to see them amusing themselves for awhile in the open garden and then as with hearing a call from the wild to take to the wing and move swiftly out of sight.

In the inner, central portion of the garden a few tall Sunflowers should stand like sen-

tinels since they produce seeds that many birds love to eat: California Poppies, for the same reason, should be grown in numbers, likewise Zinnias and Coreopsis.

Honeysuckle and Trumpet Creeper are desirable vines to cover pillars and arches as at the base of their flowers is the nectar sought by hummingbirds. The wild Clematis should be given a generous footing; also the bitter-sweet (*Celastrus scandens*).

IT IS not difficult to provide birds with food during the season of warm, luscious weather. The care then should be not to overstock the garden with houses and to bring together more birds than there is food supply. Baron von Berlepsch regards as one of his chief reasons of success that he has attended to an able management of his commissary department. He knows just how much food is supplied to each section of his garden and how many birds it will feed. But with observation the amateur soon gauges the appetites of his birds for when they are not satisfied, no matter how seductive the garden, they take to the wing, seeking other quarters.

OF COURSE to attract the birds, houses and nesting boxes must be put up. At the present time there are a number of builders of scientific boxes all of which have had an influence in furthering bird comfort. The owner of a garden has naturally to select such boxes as are likely to attract the birds peculiar to his locality and then to follow the directions for hanging and their care, which includes cleansing, sent out by their makers. To hang a nesting box well and securely, so, furthermore, that it gives the bird on the nest protection from draughts and driving rains, is of the utmost importance.

THE list of birds that can usually be attracted to the average garden in the northeastern states is both long and varied and includes: blue birds, red-winged blackbirds, catbirds, chats, cedarbirds, yellow-billed cuckoos, cardinal birds, chickadees, finches, flycatchers, grouse, hummingbirds, bluejays, juncos, kingbirds, martins, orioles, quail, robins, scarlet tanagers, sparrows, swallows, thrashers, thrushes, vireos, woodpeckers, warblers, and others equally well known.



The Woodpecker is surely a great carpenter and bores the fruit tree borers to death



A scientifically constructed house providing protection as well as shelter. The food tray below also prevents assaults by pest climbers

Woodpeckers are indeed the carpenters of the bird world and among some of the best boxes now procurable are those made in imitation of their holes. They themselves, however, are not readily deceived into substituting their craftsmanship for that of others.

ONE of the most beautiful water bird gardens in this country may be described as having been built by accident. Its designer, possessed of several acres of swamp land on Long Island, held as her original determination that of turning what was regarded as a detriment to her neighborhood into an Iris garden. In fact she patterned it after a famous large one in Japan, one in which Iris blooms traverse and color the earth like clouds do the sky. The engineering feat of the undertaking was to erect parallel dykes through the swamp so as to confine the water in distinct channels and then to plant the sides of these dykes with Irises. As the plan unfolded it began to be noticed that water birds were coming to the spot apparently from all directions. A shelter wood, one of the requisites of birds that breed near water, was soon added to the planting; and as a result red-winged blackbirds, swamp song sparrows, marsh wrens, yellow throats, kingfishers and water thrushes began to look upon this garden as their home. Besides supplying the bushes that would be useful to birds not nesting on the ground, boxes were put up for others not especially identified with swamp life. Thus a surprising number of birds eventually came to the garden and the objectionable marsh became an Iris bird-garden of a quality of loveliness appealing strongly to the imagination.

WINTER is the time when the bird-garden needs most the provident care of its builder. For in spite of the hundreds of birds that migrate there are many others that love to cling to the North throughout the year. Food trees and bells, weathervane feeding tables, all of which are now on the market, should occur at intervals throughout the planting ground and their store of grain and suet must not fail.

A precaution to be taken is that these preparations to keep the native song birds near the home do not benefit the English sparrows. For these birds are noisy and so wildly behaved that many song birds will not dwell near them. It is inevitable, therefore, that traps should be set for them and their nests destroyed.

A Glance at the Garden Books of the Year

NOTWITHSTANDING the fact that the period of 1917 took us well into the fourth year of the great war, it is noticeable that the book publishers have been quite active in adding to and extending their lists of gardening publications. Hitherto the times of the war or any other general depression have been reflected immediately by cessation of publishing activity.

The most important occurrence of the year is the completion of the Standard Cyclopedia of Horticulture (six volumes) which is the pivot on which all other minor books swing. It clarifies our gardening knowledge and gathers together in authoritative and convenient form the records of the materials available at this time. This book has already been reviewed at length in these pages. To the gardener who merely wishes to possess an authoritative list of plant names with dates of introduction, country of origin, etc., and incidentally every name translated into an English equivalent, there is the smaller handy Johnson's Gardeners' Dictionary, a revised edition of a work long recognized as an authority in England, the original of which appeared seventy years ago. As a guide to gardening materials of superlative quality E. H. Wilson's "Aristocrats of the Garden" is a book that should well be in every progressive gardener's library, based on years of experience and observation both as a gardener and botanical collector and traveller. It deals more particularly with the hardy garden and takes cognizance of some 800 species and varieties. Responding to a demand for handy volumes in color that would serve for identification of the popular plants of the garden are the four little volumes entitled "The Pocket Garden Library," each one being devoted especially to the materials of one season. The four volumes contain about a thousand illustrations with condensed cultural instructions and details of popular interest. In same style and uniform in general appearance the publishers announce an early appearance of the Western Flower Guide, with 250 illustrations.

The publishers of the "Rural Science Series" Naturally continue to add to this excellent library of manuals. A timely volume on the "Potato" is included; another is devoted to the "Strawberry," which is supplemented by a volume that deals with the history of the strawberry in North America. Many people will also be pleased to find a new edition of Prof. Card's excellent manual on "Bush Fruits." From another house, Duggar's "Mushroom Growing" and Brown's "Modern Fruit Marketing" are also timely publications.

It is curious that in the period under review we have not been given a single volume devoted to insect pests, possibly because several appeared just before. On the other hand, we have the "Manual of Fruit Diseases" by Hesler & Whetzel, "The Culture and Diseases of the Sweet Pea" and an imported volume devoted to Tree Wounds by A. D. Webster, which is the most comprehensive general book of that nature, but suffers, as is inevitable with all imported books in treating its subject from other than American conditions.

Of volumes devoted to general pleasure gardening and landscape architecture, there are several of decided merit. The demand for actual plans for the small home garden is met by three volumes—"The Book of Garden Plans" by Hamblin, a small business-like presentation of typical plans; "Practical Landscape Gardening" by Robert Cridland,

designed particularly to fit the man of small means who wants to be his own landscapist; and Miss Dean's "The House Livable; Its Garden" which forms one volume of the series devoted to the treatment of the house and home in its separate parts. In this category will come Mrs. Wilder's "My Garden," a book of remarkable interest and probably the most interpretative, inspirational and practical garden book for the American amateur that has yet appeared. The author tells about her garden and her experiences. "Studies in Gardening" by Clutton-Brock, is a reprint of an English book and is a delightful series of essays on the general theory and practice of the gardener's art.

Its treatment is so general and deals so thoroughly in fundamentals that it will be found equally valuable to the American reader especially in view of the annotations that have been made by Mrs. Francis King. Miss Duncan's "Joyous Art of Gardening" is well designed to encourage the beginner and to lead him by easy degrees into a keener and better appreciation of the joys of cultivating the home surroundings. Students of landscape gardening will be interested in the "Hints on Landscape Gardening" by Prince von Pückler-Muskau, a volume made up of selections from the writings of this master craftsman, edited by Samuel Parsons. It is a welcome addition to the educational landscape gardening library, started two or three years ago by Houghton Mifflin Company. After a lapse of many years we welcome a new volume on "Greenhouses; Their Construction and Equipment," by W. J. Wright. A period of twenty years has elapsed since Prof. Taft's classic volumes on this subject appeared, and a great deal of knowledge has accumulated. As an accessory to this there is Watts' "Vegetable Forcing" and "The Garden Under Glass" by Rowles, an importation which will be useful to the cultivator qualified to interpret for himself European practice in the light of American experience.

In the manuals of general practice we are given two volumes devoted to pruning—one by L. H. Bailey; the other by M. G. Kains. Both are valuable to the advanced student. Kains last year gave us a volume on "Propagation of Plants," dealing with the subject chiefly from the nurseryman's aspect. And we now have Hottes's "Commercial Plant Propagation" which make a more direct appeal to the amateur gardener, inasmuch as it deals with the kind of plant with which he is the more likely to be associated. The war garden activity and the possibility of turning the yield of the soil into actual profit has had its natural reflection in the appearance of a few volumes that interpret the profitable side as well as the pleasureable side of the home garden. The most recent is "Around the Year in the Garden" by F. F. Rockwell, which is a chatty and comprehensive volume cast in the mold of seasonal reminders carried through from one year's end to the other. "Every Man's Garden in War Time," by C. A. Selden, is a reprint of that author's "Every Man's Garden Every Week" makes its strong appeal to the veriest tyro in garden activities. The little volume "How to Make the Garden Pay" comprises two or three chapters on the handling of vegetables in the very small garden. And "Second Wind" by Freeman Tilden, deals with the subject "Back to the Land," written in a style of romance and is full of enthusiasm.

The juveniles have not been forgotten.

Miss Duncan's "When Mother Lets Us Garden" is a delightful, inspirational book, written by one who knows her garden practice from beginning to end and who wraps up the whole matter in an atmosphere of real delight. "Mary and Her Kitchen Garden" is a light romance in which potatoes and radishes, and peas and onions figure portentously. And for those who wish to have the fanciful and legendary side of the plants of the garden, there is: "Flower Lore and Legend" by Katherine Beals. Details of the more important books for gardeners published during 1917 follow (the price quoted includes postage.)

Encyclopedias, Manuals, Etc.

- ARISTOCRATS OF THE GARDEN:** by Ernest H. Wilson. (Doubleday, Page & Co.), \$5.50. Reprinted from THE GARDEN MAGAZINE. Deals with the best materials for the best gardens of America.
- CYCLOPEDIA OF HORTICULTURE** Vols 1-6: by L. H. Bailey. (The Macmillan Co.), \$39.60. A compendium of gardening practice and available plant materials in America.
- JOHNSON'S GARDENERS' DICTIONARY AND CULTURAL INSTRUCTOR:** edited by J. Fraser, importation (DeLaMare), \$6.60. Chiefly useful as a reference list of plant names giving date of introduction and an English equivalent for each name.
- THE GARDEN GUIDE (1917)**—The Amateur Gardener's Hand-book. (DeLaMare Co.), 75 cents. An annual of miscellaneous and statistical material.
- PRODUCTIVE PLANT HUSBANDRY:** by Davis. (J. B. Lippincott Co.), a text-book for high schools covering a wide range of information on plant propagation, plant breeding, soils, gardening, insects, plant diseases, etc.
- POCKET GARDEN LIBRARY** in four volumes edited by Leonard Barron. (Doubleday, Page & Co.), \$1.65 each.
- FLOWERS OF SPRING:** By Ellen Eddy Shaw. **FLOWERS OF EARLY SUMMER:** by Ellen Eddy Shaw. **FLOWERS OF LATE SUMMER:** by Ellen Eddy Shaw. **FLOWERS OF WINTER—INDOORS AND OUT:** by Montague Free. Each volume has about 250 color plates of popular plants and flowers for quick identification.
- FLOWERS WORTH KNOWING** (Adapted from Neltje Blanchan's Works): by Asa Don Dickinson. (Doubleday, Page & Co.), \$1.65. A popular guide to the commonest wild flowers. Illustrations in color.
- THE HUMAN SIDE OF TREES:** by R. Dixon & F. E. Fitch. (F. A. Stokes Co.), \$1.60. Shows that the forest giants are living, growing, thinking creatures, with definite habits of thought and efficient business methods. Illustrated in color.
- THE MYSTERIES OF THE FLOWERS:** by Herbert W. Faulkner. (F. A. Stokes Co.), \$2.20. An interesting treatment by an artist-naturalist of the mysteries in wild flower life. Illustrations in color and black-and-white.
- TREES WORTH KNOWING:** by Julia Ellen Rogers. (Doubleday, Page & Co.), \$1.65. Popular stories concerning the common trees of our forest and woodland.
- WAYSIDE FLOWERS OF SUMMER:** by Harriet L. Keeler. (Scribner). Flowers and herbaceous plants that bloom along Northern roadsides in July and August popularly described.
- WESTERN FLOWER GUIDE:** by Charles Francis Saunders. (Doubleday, Page & Co.), \$1.65. Uniform with the Pocket Garden Library and dealing with the common wild flowers of the West. Illustrations in color.

Special Plants

- BOOK OF THE PEONY:** by Harding. (Lippincott), \$6.60. A manual on this popular flower, giving classification, culture, etc.
- PRACTICAL BOOK OF OUTDOOR ROSE GROWING,** Garden Edition: Thomas. (Lippincott). A popular edition of a very successful and reliable book, \$2.20.

Special Fruits and Vegetables

- BUSH FRUITS:** by F. W. Card, new edition. (Macmillan Co.), \$1.93. Deals with the varieties, cultivation and general practice of bush fruit growing.
- MODERN FRUIT MARKETING:** B. S. Brown (Orange Judd Co.), \$1.93. Harvesting, packing, storing and selling.
- MUSHROOM GROWING:** by J. B. Duggar. (Orange Judd Co.), \$1.65. Mushroom culture on up-to-date methods.
- THE POTATO:** by A. W. Gilbert. (Macmillan Co.), \$1.50. About all there is to be said of this crop from all stand-points.
- THE STRAWBERRY IN NORTH AMERICA:** by S. W. Fletcher. \$1.65. **STRAWBERRY GROWING:** by S. W. Fletcher. (Macmillan Co.), \$1.93. These supplement each other. The former is a history and the other is a manual of cultivation, preparation, selling, etc.

Pathology

- THE CULTURE AND DISEASES OF THE SWEET PEA:** by J. J. Taubenhaus. (E. P. Dutton & Co.), \$2.20. The result of five consecutive years devoted to research on the diseases of the Sweet Pea.
- MANUAL OF FRUIT DISEASES:** by L. R. Hesler & H. H. Whetzel. (Macmillan Co.), \$2.20. The known facts referring to the common diseases of the orchard and methods of control.
- TREE WOUNDS AND DISEASES:** by A. D. Webster. (Lippincott Co.). Importation, \$2.75. Causes of injury and methods of remedy and repair.

General Landscape Gardening

A GARDEN DIARY AND COUNTRY HOME GUIDE: by Loring Underwood. (Stokes), \$3.85. A page for each day of the year is divided into four parts, in which to record the observations of four successive years. Short seasonable reminders.

BOOK OF GARDEN PLANS: by Stephen F. Hamblin. (Doubleday, Page & Co.), \$2.20. Twenty typical plans in blue prints, representing diversified actual problems.

HINTS ON LANDSCAPE GARDENING: by Prince Von Pückler-Muskau. Edited by Samuel Parsons. (Houghton Mifflin Co.), \$3.85. An entertaining work and an addition to the series of landscape classics that the publishers have undertaken.

THE JOYOUS ART OF GARDENING: by Francis Duncan. (Scribners), \$1.93. For the owner of the small place, who works among flowers.

THE LIVABLE HOUSE—ITS GARDEN: by Ruth Dean. (Moffat, Yard & Co.), \$2.75. Treating the garden from its artistic side as part of the house. Illustrated.

MILADY'S HOUSE PLANTS: by F. E. Palmer. (DeLaMare), \$1.10. A guide to managing flowers and plants in the home and Ideal Sun Parlor.

MY GARDEN: by Louise Beebe Wilder. (Doubleday, Page & Co.), \$1.65. A story of the year in the author's garden, her experiences and trials and triumphs.

PRACTICAL LANDSCAPE GARDENING: by Robert B. Cridland. (DeLaMare Co.), \$1.65. A general treatise on the home garden for the man of moderate income.

STUDIES IN GARDENING: by A. Clutton-Brock, Introduction and Notes by Mrs. Francis King. (Scribners) \$2.20. It is in the belief that Mr. Brock's charming studies are of the best of all gardening literature that Mrs. King

has supervised their American publication. Mr. Brock writes of English gardening, but so largely of the general theory and practice of the art that his work is equally valuable in America.

Greenhouse and Allied Subjects

THE GARDEN UNDER GLASS: by Rowles. (Lippincott Co.). An importation and possessing all the limitations incident to foreign practice.

GREENHOUSES: THEIR CONSTRUCTION AND EQUIPMENT: by W. J. Wright. (Orange Judd Co.), \$1.75. Deals with the practical problems of building, heating, etc.

VEGETABLE FORCING: by R. L. Watts. (Orange Judd Co.), \$2.20. The result of several years' practical work and in teaching. Chiefly commercial.

Manuals of Practice

COMMERCIAL PLANT PROPAGATION: by Prof. Alfred C. Hottes. (DeLaMare). Well described by its title.

PRINCIPLES AND PRACTICE OF PRUNING: by M. G. Kains. (Orange Judd Co.), \$2.20. A general manual for the student and nurseryman.

PRUNING MANUAL: by L. H. Bailey. (Macmillan Co.), \$2.20. Devotes much attention to the fruit grower.

SOILS AND FERTILIZERS: by F. L. Lyon. (Macmillan Co.), \$2.20. Embodying up-to-date principles in modern practices.

Cashing In, The Profits

AROUND THE YEAR IN THE GARDEN: by F. F. Rockwell. (Macmillan Co.), \$1.93. A "reminder" book of definite instruction for the unskilled amateur.

EVERYMAN'S GARDEN IN WARTIME: by Charles A. Selden. (Dodd, Mead & Co.), \$1.48. A reprint of Selden's "Everyman's Garden Every Week."

HOW TO MAKE THE GARDEN PAY: by Edward Morrison and Charles Thomas Brues. (Houghton Mifflin Co.), 83 cents. It tells how to raise vegetables for home use and how to raise them profitably.

SECOND WIND: by Freeman Tilden. (B. W. Huebsch), \$1.10. The ancient theme of the man who went "back to the land" with a new touch which makes it read like romance. The story of a middle aged man who actually did go back to the land.

Juveniles

FLOWER LORE AND LEGEND: by Katharine M. Beals. (Henry Holt and Co.), \$1.38. Fascinating old stories retold charmingly.

MARY AND HER KITCHEN GARDEN: by Alice Crew. (George H. Doran Co.), \$1.38. Alice Crew has written the verses and Lee Wright Stanley has drawn the pictures that make this book fascinating and instructive. Radishes and potatoes and peas and onions become very real factors in the life and in the dreams of Mary.

THE TREASURE OF THE LAND: by Garrard Harris. (Harpers), \$1.32. Deals with tomato canning contests for girls.

WHEN MOTHER LETS US GARDEN: by Frances Duncan. (Moffat, Yard & Co.), 83 cents.

[NOTE:—For the convenience of subscribers the Garden Magazine Editorial Dept. will gladly execute commissions for the purchase of books of all publishers.]

Vegetables for Under Glass Culture A. KRUHM

EAT less, produce more—that is the slogan of the moment. Making the available supplies go the farthest is the basic idea in all nations nowadays. England is proceeding on the plan that it was better to provide maximum supplies, while the Central Powers put the people on minimum rations. Three times in three years the system of the Central Powers has been changed in an attempt to convert it from a failure into a practical success. England to-day, in many respects, is better off than we are.

In democracies, like England and America, it is easier to get people to produce more than to get them to eat less. In this matter of food production, GARDEN MAGAZINE readers (as has been pointed out repeatedly), stand in a singularly peculiar position for the playing of an important part. At this particular season, every owner of coldframes, hotbeds, or greenhouses, should strain every nerve to produce two pounds of green food where only one grew before. The following list of pedigreed vegetables suggests quality types and strains that yield well—strains of proven merit for under-glass gardening.

Practice intensive cultivation. By selecting varieties, types, and classes adapted to your particular space and equipment, you may be able to raise four rows in the place of three, and to grow three crops in the place of two, between January and May. Studying the approximate time required for crops to reach edible size, as given below, should enable you to work out a perfect programme, just as you do for your outdoor garden.

The most popular vegetables for under glass rank as follows:—Beet, carrot, kohlrabi,

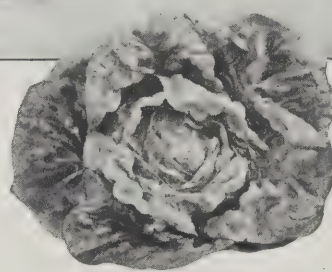


Hotbeds and coldframes are useful in proportion to the skill with which they are used. With conditions not of the best for growing crops it is essential to make use of selected varieties of proven adaptability to under-glass cultivation.

lettuce, radish, beans, cucumbers, tomatoes, cauliflower and muskmelons. It is significant that experts do not differ as to the most profitable strains for under-glass vegetable crops.

The first four are the easiest to grow. Beans, cucumbers and tomatoes require more space, heat and time. Cauliflower and muskmelons are luxuries. Getting special forcing strains for under glass is essential. Most seedsmen have their own selected strains of approved varieties, selected toward individual ideals and differing in minor degrees.

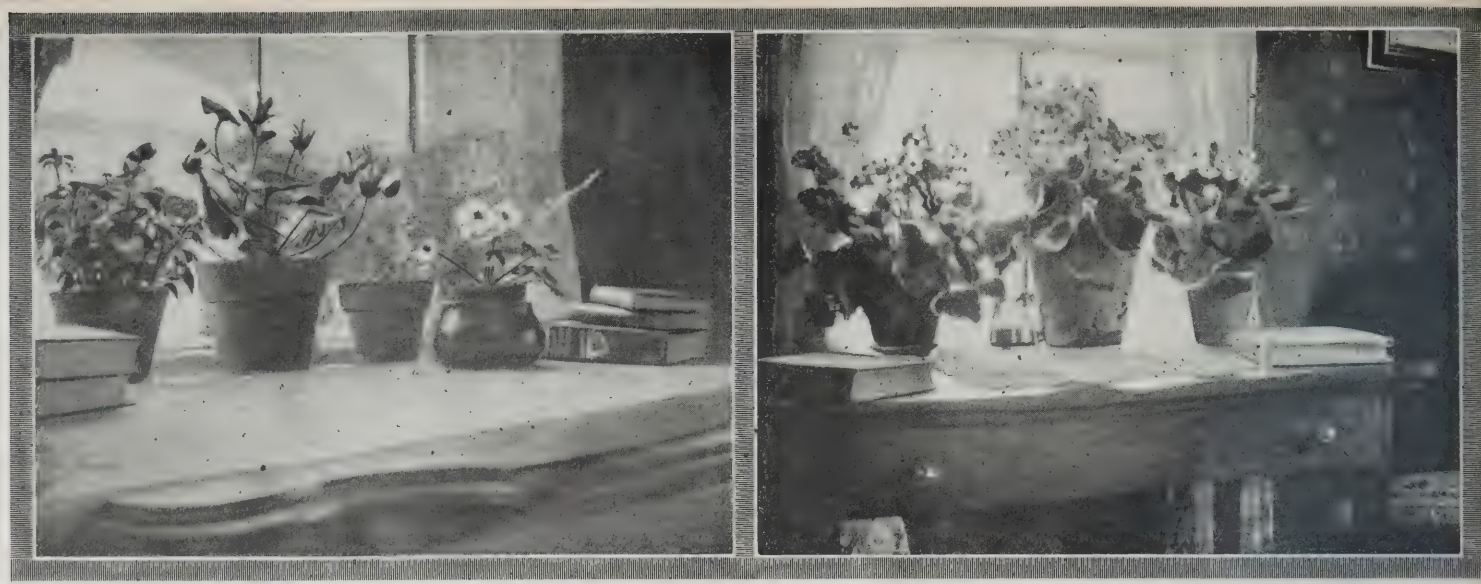
Beet: Crosby's Improved Egyptian. Carrots: French Forcing and Gold Ball, ready in forty-five to fifty-five days. Generally grown as a companion crop with radishes and sown in same furrows. Kohlrabi: Early White Vienna or Early Purple Vienna, two and a



half to three inch roots within fifty-five days from sowing. Lettuce: Grand Rapids (loose leaf), May King, Naumburger, Big Boston and Dreer's All Heart (butterhead). Radishes: Small, short-leaved radishes of the "cherry-stone" type may be gathered in from eighteen to twenty-five days, depending on variety. Among round red sorts are Rapid Red Fireball, and Cardinal Globe; White-tipped olive-shaped French Breakfast; and round white-tipped, Sparkler. Wood's Early Frame is the popular long red sort, and the Pearl Forcing Strain of White Icicle in the long white radishes. Early Wonder Beans: Triumph of Frames and Dwarf French Forcing. All do better after February 1st, when sunshine and daylight become stronger and longer. Of Cucumbers there are two distinct types: (1) The long English Telegraph type, requiring from 100

to 125 days to reach full size. A strong grower and where space permits, will yield a quality product beyond compare. (2) The short fruited White Spine type (including such kinds as Davis Perfect, Vickery Forcing and Arlington White Spine), yielding fifty to sixty-five days from date of sowing, according to conditions. Tomatoes: (Small-fruited) Sunrise, Comet and Stirling Castle, all light red; (large) Beauty and Magnus, purple-red. Commercial growers consider Livingston's Globe as the most profitable purple fruited sort of medium size for under glass cultivation.

The Dwarf Erfurt type of cauliflower, is well adapted for growing in hotbeds.



A little thoughtful care given to the holiday plants and they may be made permanent inhabitants of the window garden

After Blooming—What? ANNA M. BURKE

MAKING THE MOST OF THE HOLIDAY GIFT PLANTS.—HOW TO GET THE MOST VALUE OUT OF THEM

THE joy of the Christmas season takes on an added note if some one has remembered us with a pot bright with blossoms or gay with crimson berries. Wars may wage across seas, snows may whirl against our window, but at least within doors there is peace and warmth, and the cheer of "green things growing."

But alas, it too often happens that the plant which was cherished as a thing of beauty at Christmas time finds itself, a month or two afterward, consigned to the ash barrel because its flowers or berries have faded; whereas with a little care given at the right time it might be made to bloom and give pleasure for many years.

Most of these plants have been grown under ideal conditions, and the change from the moist coolness of a greenhouse to our overheated and underventilated living rooms is very marked. Much can be done to temper the shock of this change by keeping the plants, for a part of the day at least, in a room where the temperature does not go much above sixty degrees, changing the air in the room occasionally, and by frequent spraying of the leaves keeping them free from dust.

The Poinsettia

RED is the dominant note among Christmas flowers, and no plant bears this color more bravely than the Poinsettia—that brilliant flower of Mexico, which so obligingly unfolds its crimson bracts in the dead of our Northern winter. It is a most decorative plant, whose beauty may be much enhanced by placing it against a background of delicate Ferns. Keep away from the direct rays of the sun, and give frequent sprayings to prevent the tiny red spider from taking up his abode beneath the leaves. When the bracts fade, set the pot in a dry cellar, where it will require no water or attention until spring. About the middle of May, plant the roots outside in a sunny spot, or if no yard space is available, leave the roots in the original

pot and bring it into a sunny window and water well. Tiny shoots will soon appear, which should be broken off when about two inches long and potted in sand. When rooted, four or five of the little plants may be set in an 8-inch pan, filled with good garden soil mixed with leaf mold and a little bone meal. During the summer they may be kept out of doors, or in a sunny window, as preferred, keeping the pots well watered and giving liquid fertilizer every two weeks. (A teaspoon of nitrate of soda dissolved in a quart of lukewarm water makes a clean fertilizer, or half a teaspoon of bone meal may be stirred

into the soil, where it will slowly dissolve and feed the roots). If kept out of doors, the Poinsettias should be brought in about the first of September and kept in a warm, sunny window until the brightly colored bracts appear.

Ardisia

HIGHLY prized for the profusion of its bright crimson berries the Ardisia is one of the most popular Christmas plants. Its leaves are a dark, glossy green, and so beautiful that it would be a desirable plant for its foliage alone. The clusters of berries often last for two years, if the plant is kept well watered, with frequent sprayings. In the spring it should be set in an east window, to induce new flowers. When these appear, give liquid fertilizer once a fortnight. During the summer it may be kept in the living room, or in a corner of the veranda sheltered from winds, bringing it into the house before there is the slightest danger of frost.

Jerusalem Cherry

ANOTHER popular fruit bearing plant is the Jerusalem Cherry, very symmetrical and so laden with berries that it would be hard to find a more attractive table or window ornament. The "cherries" will last for three months, but if a trace of coal gas is present in the room the green leaves will quickly drop off.

Frequent sprayings will help to keep it in a healthy condition. In the spring, the old plant may be cut back and then plunged in a partly shaded spot out of doors, giving plenty of water during the summer. Keep the tips pinched back to make the plant bushy, and turn the pot frequently to avoid a one-sided growth. Before bringing into the house a little bone meal should be stirred into the soil. The Jerusalem Cherry is easily grown from seed. Crush one or two of the berries, separating the seeds from the pulp, and sow in February in a box of fine soil. Transplant into pots and treat during the summer as in the case of the old plants.



Of all the Christmas plants the Poinsettia seems to be most seasonable. It needs drying off before new growth is started in the spring

Ornamental Peppers

AS THE holiday season approaches, one frequently sees in the florists' windows pots of gay little peppers—the tiny fruits in all stages of development, ranging in color from green through cream and yellow to brightest red. They are most attractive and are a practical gift besides, as the pods may be picked to add piquancy to a sauce or salad. If kept well watered and sprinkled, the pods will last until February, after which they may be given the same treatment as the Jerusalem Cherry.

Azalea

IT REQUIRES no little will power to resist the lure of the flower shop in Azalea time. Such gorgeous colorings and such a wealth of bloom! Although fairly expensive to buy when in full bloom, an Azalea is really a good investment, because with a little care it will live and blossom for many years, increasing in size and beauty each winter, and will add a note of color to living-room or conservatory that no other plant gives. When the blooming season is over, do not thrust the plant into the cellar or into some obscure corner. That is the Azalea's annual growing period and it must be encouraged to make a good growth in order to store up strength for next season's bloom. It is well to repot the plant then, using if possible a soil composed of sand and leaf mold mixed with good garden soil. Keep it in a cool, sunny room, and spray often with lukewarm water. Pick off all dead flowers and prune back any uneven growth. The Azalea is easily injured by too much or too little water; the soil should always be moist, never dry nor water-soaked. As soon as danger of frost is over, sink the pot in the ground in a cool, partly shaded spot in the garden, placing a layer of coal ashes in the bottom of the hole before setting the pot therein. Keep it well watered and sprayed during the summer, turning the pot occasionally to keep the growth symmetrical. A few applications of fertilizer will increase the



Ornamental Pepper or Capsicum is handled just like the old favorite Jerusalem Cherry. They come with fruits in several colors. Seeds from the berries may be sown in February

growth. Before frost remove the plant to the house and keep in a cool, well lighted room. When ready to force bring into a sunny window, spraying daily. As soon as the flower buds are well formed, remove from the direct rays of the sun.

Winter Begonia

ANOTHER lovely gift flower is any Begonia of the Gloire de Lorraine type. So profuse is the bloom that the foliage is almost hidden and each plant seems a great bouquet of soft pink flowers. If kept cool and well sprayed, the blossoms will last until April. The plant will then require a season of rest, during which it should be kept in a cool, well lighted room, giving only enough water to prevent the plant from drying. About the first of June it should be repotted, using a soil composed of leaf mold, sand and loam, with a

sprinkling of bone meal. During the summer keep in a shaded position. After hot weather is past, a vigorous new growth should appear, and the plant can be gradually brought into full sunshine, keeping it as near the glass as possible to develop flower buds. Occasional doses of liquid fertilizer or bone meal should be given.

Cyclamen

THE dainty Cyclamen will usually live and blossom for several years, although the flowers will not be so large as on new bulbs. The blooming season of the Cyclamen is usually over about the first of May. When no more flower buds appear water should be gradually withheld and the bulb allowed to ripen. About the middle of May plunge the pot outside in a shady, well-drained spot, watering occasionally. As soon as new leaves appear repot the plant, using equal parts of sand, leaf mold and loam, with a little bone meal. Do not bury the bulb; simply press it into the soil. The Cyclamen does not need strong sunshine and thrives best in a fairly cool room. It relishes a daily spraying with lukewarm water to discourage the red spider, which is its only enemy.

Various Bulbs

EACH year one sees more and more bulbs forced into bloom for Christmas. Pans of graceful Roman Hyacinths, baskets of Daffodils tied with gay ribbons and pots of early Tulips are displayed in the florist's window to lure the passer-by into buying one of the loveliest gifts of the season. Equally as fascinating as these pots of bloom are the boxes containing a little bowl of pottery or brass, some fat brown bulbs and a supply of white pebbles. All that is needed is to place the bulbs in the bowl, surrounding them with the pebbles to keep them upright, fill with cool, fresh water, place in a sunny window—and watch the mystery unfold. As soon as the flowers appear remove to a cool corner of the room. "Can I force them again?" is the



The Indian Azalea is a good investment, increasing in size and beauty each year. It must be kept growing after flowering and not dried off



The Cyclamen will bloom year after year. Gradually dry off after blooming to ripen the bulb. Plunge outdoors in early summer and encourage to grow

question so often heard from those who are loath to part with such delightful new acquaintances. These Dutch bulbs—Narcissus, Tulip and Hyacinth, cannot be forced a second season with any success. A few inferior blossoms may be had, but when new bulbs may be bought so cheaply, it is not worth while to depend upon old bulbs for winter bloom. They need not be thrown away, however. Keep the pots watered until the foliage turns yellow, when they may be removed to the cellar. In the spring they may be planted in the hardy border and after a season of rest they will bloom for several years.

Primrose

THE Primrose (*Primula obconica*) is also quite willing to blossom for several seasons with a treatment very similar to that given the Cyclamen, except that the Primrose must be watered regularly throughout the summer. If the old plant is large, the crown may be

divided, putting each individual plant into a small pot. They should be kept growing throughout the summer, transplanting to larger pots as they grow. Repot in the fall, using a rich soil, made loose with sand and leaf mold, and keep in a cool room. A north or northeast window suits the Primrose very well.

Beautiful Leaves

JUST now the florists are offering some beautiful foliage plants, whose variegated leaves are quite as attractive as flowers or berries. They are very practical gifts, because they look well at all seasons of the year, so that they may be used to decorate the hall or living-room in winter and the porch during the summer. They are also less sensitive to variations in room temperature and lack of sunlight, often thriving where a blooming plant would sulk or die.

One of the best for table decoration is the *Dracaena*. The red-leaved *D. terminalis* is

very showy and when planted in the centre of a pan, surrounded with Spider Ferns (*Pteris cretica*) the effect is excellent.

A stronger growing, shrub-like plant is the *Aucuba*, often called the Gold-dust Plant because its glossy leaves are green thickly spotted with yellow. It is excellent for hall or veranda. To bring out the beauty of its foliage it should be sprayed or sponged frequently. With a little care it will look well for many years.

While these foliage plants and Ferns have no dormant season, they appreciate a period of rest, signifying the fact by ceasing to throw out new leaves or fronds. The water supply should then be cut down, giving just enough to keep the plant in a healthy condition. Frequent sprayings should never be omitted. When new growth starts again, increase the amount of water and stimulate fortnightly with liquid fertilizer, or a small amount of bone meal may be stirred into the soil of each pot.

Is Drug Plant Growing Practical?

L. WAYNE ARMY

Extension Director, Mass. Agricultural College

[EDITOR'S NOTE: Many letters of inquiry about the possibilities of drug plant growing have been received during recent months. This article presents the facts as they are, looking at the question in a broad, open manner. Too many people are impulsively anxious to rush in (to almost certain failure and financial loss) where careful people with business acumen will hesitate. That drug plants can be grown is of course a truism; but whether they can be grown profitably is a different question, especially as the same plant under the same management in two different sites may give two different results in the yield of the essential principle, and no one knows why.]

DON'T attempt drug plant growing as a serious undertaking without weighing all the factors. During the last two or three years ill founded attempts at the growing and collecting of medicinal plants have led to a great many garden tragedies.

Before the great war very little thought was given to drug plants except in those sections where there was an established industry such as the peppermint industry in Michigan and other of the middle western states; and no one would have seriously thought of establishing a "farm" on which to grow belladonna and other of the more common medicinal plants. But the war soon stopped the importation of most of these plants which are so greatly needed in this country, and we were faced with a very serious shortage of crude drugs. Naturally, the obvious course of procedure was to endeavor to make good this shortage by home production, and this was actually done in many places. But certain peculiar problems soon presented themselves with the result that the enthusiastic embryonic drug growers began to realize that something more than the desire was necessary to fill the demand for crude drugs of high quality.

There is not the least doubt but that never will the time be more opportune for establishing an American crude drug industry; and such an industry is sorely needed, regardless of European conditions. But it must be well realized that the accomplishment of this depends upon a thorough knowledge of certain peculiar conditions both here and abroad and that such an industry must be built not only with the thought of supplying the needs of the moment but also with a determination of putting it on a very sound basis so that it will be able to thrive even after the present war conditions no longer obtain. There are several reasons for the desirability

of this. Even before the war started, the European importations of crude drugs were not wholly satisfactory. Much that came to our shores showed attempts at adulteration, or the substitution of spurious leaves for official ones.

Conditions Here and Abroad

AS SOON however, as we attempt to compete with European drugs we are faced with the difference in labor conditions, and the manner of overcoming the existing difference in the labor status is the crux of the whole situation and upon its success depends any effort that may be made at establishing an industry in America.

There are only two means at hand which will enable the American grower to accomplish his purpose: producing more drugs per acre, or producing better drugs which will command higher prices in our markets. Unless he can do either one of these two things he is doomed in his business. The first alternative is almost hopeless, since the European gardener is so much advanced in experience and already has methods which our growers have not. But there is great hope in the possibility of our growing better drugs than are produced abroad, and it is with this thought in mind that the prospective drug grower should begin his endeavors.

Let it be here stated in no uncertain terms that the man whose ambitions are solely to grow drug plants regardless of their alkaloidal content or their relative merit compared with those produced somewhere else will never succeed and his efforts are to be classed with get-rich-quick schemes of which we already have far too many. For the man who is earnestly endeavoring to grow crude drugs of exceptional quality there is a very bright future.

Let it also be said that there is no place for the enthusiastic economist who has the idea

of collecting weeds with the double aim of converting them into money and at the same time ridding his property of noxious plants. The markets are well stocked with such drugs and the men who are collecting them are mostly foreign laborers who are content with one dollar per day as a return for their work.

The seriously minded drug grower needs a good greenhouse or at least an ample supply of hot beds and cold frames. The greenhouse is very much preferable since most of the more valuable crops must be started under glass about January, and their success is more nearly assured in a good house. He must also have had experience in handling special crops. Drug plants are not like anything he has ever grown before, and it is for this reason mainly that the average farmer is so wholly unsuited for the work. The market gardener or the floriculturist is very much better equipped for the special demands that will be made upon his resources. And lastly, but not least, he must have a fair capital, a good deal of which he is prepared to lose or to charge to experience or the pleasure which he has derived from his researches. In other words, the average of ten years of drug growing will probably not show any material increase in financial return over the production of the same acreage of any other special crop such as market garden produce, flowers or nursery stock.

Drug Crops in Demand

THE crops which are at this time in greatest demand are: belladonna (*Atropa belladonna*), Hydrastis (*Hydrastis canadensis*), digitalis (*Digitalis purpurea*), Hyoscyamus (*Hyoscyamus niger*), aconite (*Aconitum Napellus*), cannabis (*Cannabis americana*). There are many others which are bringing a fair price but they are mostly easy enough of culture so that little difficulty would be experienced in their production.

Of the above list, Hydrastis is one of the most interesting. It is native to the American woods, is not found in Europe, and hence is not influenced by foreign competition. Not many years ago this plant was in such quantities in a native state that its price in the crude form rarely went above thirty cents per pound. But the plant has been collected with utter disregard to any laws of conservation until there is now an actual scarcity of it and the normal price is somewhere about four dollars per pound. The war price has gone considerably above this figure.

Hydrastis. In the commercial production of Hydrastis the effort is usually made to imitate the natural conditions of growth as closely as possible, and many acres of it have been planted in woodlots, and allowed to go as it would for a period of years. This method is to be condemned, for while it is cheap it is very difficult to obtain satisfactory roots under such conditions, and there is usually more time taken to mature a crop than when grown under the artificial conditions of a ginseng house.

Such a house is constructed of lath in a manner which will give approximately 75 per cent. shade. The beds are regularly laid out as in a greenhouse and conditions are much more nearly under control than in the woods. Furthermore, marketable roots may be produced in four years as against five or six in the woods. The plant is usually propagated by root cuttings or by buying two-year old plants from some dealer who is making a specialty of hydrastis and is set in the beds made of exceedingly rich wood mold. Little work is then necessary except to keep the beds clear of weeds until harvest time which is determined by the size of the roots. Commercial roots should be at least one half inch in diameter. They are dug in the fall or in early spring when the plant is dormant, cleaned, and cut in lengths of about eight inches and packed in bundles of a hundred or more. There is some evidence that diseases are attacking hydrastis in much the same manner as ginseng was attacked and every hydrastis grower should be well on the lookout for the first signs of such trouble and destroy any plant that looks suspicious. At the present time there is not enough known about these fungous troubles to give directions for their treatment.

Belladonna. This is next in importance, the normal price being about thirty cents per pound and the war price between one and two dollars. Belladonna is a very difficult crop to grow chiefly because not enough is known about its horticultural requirements, and propagation material is very difficult to obtain. There have recently been sales of belladonna seed at which prices of \$80 per pound have been paid. While the common name of this plant is "deadly nightshade" it must be well understood that it is not *Solanum dulcamara* which is known as "deadly nightshade" in some sections of the country but *Atropa belladonna*. Belladonna seed must be sown in the greenhouse about the first of January in flats containing a rich sandy soil mixture. It is very slow in germinating and only a comparatively few of the seeds will produce seedlings. A fifty per cent. germination is considered by some growers as being satisfactory, and many get less than that. Transplant the seedlings into pots as soon as they are large enough to move and keep in the house at a temperature

of about 60 and then move to the fields when the weather has settled in the spring and the ground is warm. It is very advisable to make the field transplanting on a cloudy day when the soil is moist, since the seedlings wilt quickly and are very difficult to handle after they have wilted. The crop must be cultivated as for corn and watched very carefully for blossom buds. As soon as these are ready to burst, start the first picking of leaves. Unless the crop is a large one, it pays to harvest by hand-picking the leaves into sacks which are at once moved to a drying shed. A barn may be used for this purpose provided it has good ventilation, and is very much improved if there are wire racks arranged so that the leaves may be suspended and receive air from all sides. It is also necessary to turn the picked leaves two or three times each day for the first two or three days to prevent molding or fermentation.

This drying operation is one in which the American growers have a great deal to learn. A well dried leaf will have such a high chlorophyll content that it will be almost as green after it is dried as it was in the fresh state. With the ordinary air drying methods which are used in this country it is practically impossible to obtain these results.

If the plants are well handled it is possible to get three crops the first year and four the second, and after the growing season of the second year the roots are dug in the fall and they are then dried and marketed much the same as hydrastis roots. In a great many localities it is very difficult to properly winter over the belladonna root even though they be heavily mulched with straw or other material. It is therefore profitable to take the root up in the fall and reset it in the spring if the area involved be small enough to permit of this operation.

Hyoscyamus is probably the most difficult drug crop that may be grown in the temperate regions, and for this very reason is one of the most satisfactory to produce from the standpoint of financial return. The seed is usually harder to germinate than that of belladonna and the germination is generally poorer. For best results, the soil in the seed flats may be slightly more sandy and the flats well shaded until the first seedlings appear. They are then handled in the same manner as belladonna. After the plants are set in the field the grower has a continual fight with a wide variety of insects. It is a common experience where there is hyoscyamus growing near a potato patch to see the potato beetles leave the potato plants and go to the hyoscyamus. The crop must therefore be sprayed once each week with arsenate of lead and the cultivation must be shallow enough not to disturb the roots in any manner. It is useless and a waste of time to sow the seed of either hyoscyamus or belladonna directly in the field. It is practically impossible to produce a crop in this manner although a great deal of good seed is annually wasted in such futile attempts.

Aconite is difficult to make germinate, but once that has been accomplished the seedlings are easy to handle and a good crop may be expected.

Digitalis (the Common Foxglove) is simple of culture although in many sections a great deal of trouble is experienced in wintering the roots. This is not the serious feature it once was, since the new Pharmacopoeia has made

official the leaves of the first year plant, and the crop is so easily grown that there is no objection to growing it as an annual, except when the seed is wanted.

Cannabis is perhaps less difficult than digitalis, and the same treatment as given to field corn will usually produce a good crop of cannabis. It must be remembered in this connection that the sex of the cannabis is distinct, the males having a very different appearance in the field as compared with the female. Only the female plant has any medicinal value. Some cannabis growers are now removing the males from the field as soon as fertilization has been accomplished thereby removing from the final product practically all of the waste material.

Plants that Yield Oils

MANY of the volatile oil plants and the old garden herbs are subjects of interest and if the grower has had experience in handling them, they may be made profitable. Sage, calendula, horehound, coriander, pennyroyal, wormwood, tansy, rue, etc., etc., all give promise of again coming into prominence, although in some cases the profit would necessarily come from the distilled oils which would involve the use of a still in the garden. This is not an operation which would make the growing of these interesting plants prohibitive.

Marketing a Real Problem

IT IS more difficult to market a drug crop successfully than it is to grow it. The most usually successful way of disposing of a well cured crop is to send a small sample to each of four or five commercial houses which are regular buyers of the particular drug in question. The novice will be surprised at the wide range in the offers which he will receive, some being discouragingly low, and none as high as the grower had hoped. The price paid for these crops is based on the amount of *active principle* present.

There is not enough known of this subject to enable any one to state what brings about high or low yields; but it is very definitely known, that certain fields will yield a high atropine content in belladonna for example, while other fields nearby will produce plants so low in atropine that their harvest will bring no profit. The new grower therefore will plant only a small crop the first year so that he may have some idea of what to expect from his particular conditions.

The Outlook

GROWING medicinal plants must be done in such a manner as to insure a continual supply of crude drugs of high quality. There never was as opportune a time for such work as at the present, since the greatest importations of crude drugs have come in years past from England, France, Belgium, and Germany. There will therefore be a period even after the war has stopped when little if any crude drugs will be imported.

The business of growing drugs is not one which would appeal to the farmer, the amateur gardener or the corner druggist with a back yard, but rather is one which gives promise to the man who regards it as a business, and who is fitted by reason of capital and previous training to follow it through to success.



1. Dig up the Dahlias and put them on one side for an hour or two to dry off

Dahlia Tubers

THIS is for amateurs and is the result of our experience for the past five years during which we have grown more than five hundred plants of some two hundred varieties each year. Tubers have been kept in boxes packed in dry sand, in boxes packed in ground cork, in piles covered with papers, in piles on a platform raised three inches from the cellar floor with papers under and over the pile and sand thrown over the papers, and in boxes lined and covered with papers but with no packing material.

The successful keeping of the tubers begins with the digging. This should be done on the first fair day after three days from the killing frost and should not be delayed more than a week, especially if the weather is warm. This gives time for whatever strength may recede from the stalk and not enough time for the tubers to sprout.

A notebook should be kept in which are minuted the peculiarities of each variety. If the tubers set compactly with strong necks like Doazon, John Wanamaker, J. H. Jackson, they may be dug with a spading fork set well underneath and then lifted up. If the tubers are heavy, with small necks and long feeding roots from ends of tuber, like Yvonne Cayeux, Iris, Century, Philadelphia, the earth should be carefully removed, the tubers uncovered, and the feeding roots cut off, and it will often be better to divide the clump before it is lifted out. A few light blows on the end of the stalk, which should be cut close to the ground before the digging, will make the earth drop from the tubers. Then allow them to dry until the moisture is out of the earth that will still cling, but take care that the tuber does not shrivel and that the skin does not wrinkle.

Very soon after being dug, cut off the stalk within an inch or two of the crown and trim off the feeding roots and all tubers with broken necks. This will hasten the drying, leave the dirt in the garden and, besides, the tubers will pack closer and keep better.

The best thing in which to pack them is boxes at least a foot deep, fifteen to twenty inches wide and two feet or more long. If sand is used the box should be lined with papers to prevent the sand from sifting out through any cracks. Be sure that the sand is very dry and that no moisture is on the tubers. Bore two holes in the bottom of the box and plug and set the box so that another box may



2. Then chop off the stalks, leaving about six inches. A machete is handy for this



4. The Dahlia roots may be stored in boxes with dry sand



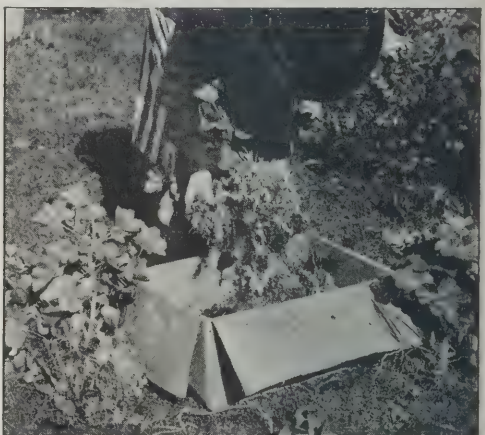
6. Lift the Geraniums and pack away in sand, to be moistened occasionally during the winter—



3. Attach the label carefully. This is important. A wire label is convenient



5. Ease up the soil around the Gladioli and then pull up and—(See No. 11)



7. Or, Geraniums may be lifted and tied in bundles with moss around the roots; then hung up in the cellar

be put under to catch the sand when emptying the box to examine tubers. Ground cork, that can be had at the fruit store, is just as good as sand and much lighter so that the boxes can be easily moved.

Some kinds, like Maud Adams, General Miles, La Colosse and its children, should be put in neither sand nor cork. We have found that there is less loss from drying up when no packing material is used than there is from

decay when sand or cork is used. If your notebook tells you that certain kinds are apt to dry out, pack those in sand or cork. For the others, line the boxes with ten or twelve thicknesses of newspapers, bottom, sides and ends, laid smoothly, with papers projecting to fold over top when box is filled. Then lay in the tubers, top side down. There are two good reasons for this—the acrid juice will settle away from the crowns and they will pack



8. Use a spade to dig out the Cannas, leaving them exposed to dry off slightly



9. Then trim off the tops and take the roots indoors



10. Store roots in flats packed with sand; then place in a cool cellar till spring



11. —trim off the top before finally cleaning up the roots for winter storage



12. Keep each variety separated and store away with names attached



13. Several varieties in one box, separating them by strips of wood



14. Tuberoses are handled like the other tender roots—lifted, trimmed and stored in pans of sand

closer, equally important. Then fold the papers over the top, first having laid a few thicknesses on the tubers, and lay something on top of the papers to hold them close, but not too heavy.

If tubers are bruised in digging, cut away to make smooth and then dust with powdered sulphur. Varieties that are apt to decay at the crown should have the crown and stalk thoroughly sprinkled with sulphur. The power of sulphur to prevent decay and to arrest

it if it has begun, is remarkable. One spring we planted a Suzanne Cayeux; in the fall it had more than doubled in size, and the next spring it was firm and good except that it had begun to decay. We cut out the decayed part, dusted it well with sulphur and planted it again. It grew well, and when we again dug it, it was as firm and sound as when planted, the sulphur having prevented further decay.

When the tubers are packed by themselves

it is easy to look them over, just moving from one box to another. This inspection should be done after a month or so, say between December 1st and 15th. If any are beginning to decay, carefully cut the decayed part away and dust with sulphur; if any stalks or crowns show moisture, sprinkle with lime dust and sulphur, and return to the box. The boxes should be kept away from furnace heat, preferably in a room in one corner of the cellar where the temperature will not be above 50° or go below 38°, with the window darkened. Ours are kept in a corner room with brick walls, cement floor, and with a loss of one per cent. against a loss of from ten to twenty-five per cent. when kept in sand, cork or in piles. Some kinds will dry up, these may be put in a box with a moist sponge or wet papers, but not so that they will touch, and this may save them. But there are varieties enough that are good enough so that an amateur may well discard the kinds that are difficult to keep over winter. After all, one's own experience is the best teacher, but ours may be helpful.

Massachusetts.

E. V. WILSON.

Gladiolus Bulbs

AFTER the tops have matured it is a simple matter to merely dig up the attached bulb as shown in the illustrations 5, 11, and 12. The top need not be cut off immediately; indeed it is usually better to gather the bulb with the attached leaves and proceed to the cutting off in a conveniently sheltered place later on. But in order to avoid handling too much material they can be shortened considerably as they are gathered in the garden. Gladiolus bulbs are kept over the winter in just exactly the same way as other bulbs, with the one precaution that they must not freeze. After slightly drying off they must be cleaned up, the new flowering bulb separated from the remnants of the old one which has rendered its service and at the same time separating the mass of smaller cormels which are produced more or less, according to the characteristic of the variety. These small cormels may be stored into size, the larger ones of which will soon develop into flowering vigor. The smaller ones can be sown out next year in nursery rows, to be grown on and treated like the older bulbs.

Aphids on Your Plum Tree?

EDITH M. PATCH
Entomologist Maine Experiment Station

[EDITOR'S NOTE: This story identifying the plum aphid with the one on aquatic plants in summer is too interesting to be buried from the general reader in a scientific bulletin where the author put it a year or so ago, after tracing the wonderful life history of the insect concerned. So the marvel of it is rewritten in words that are not technical because of its practical interest to the gardener.]

WELL, spray promptly, of course. Use kerosene emulsion if you know how to make it so it will not injure the foliage. If not, try some good tobacco extract and apply freely—don't miss one of the pests! Kill 'em quickly—the whole messy sticky colony that the ants are ambling among! If you don't, your plums are doomed (Unless, of course, the syrphid maggots, lady beetles and aphid lions undertake the job for you and save you the expense of the spraying equipment).

"What are aphids for any way?" "Why to keep the horticulturist from becoming lazy,

since 1761. This is not so strange as it may seem and is the same thing that has happened to many of Linnaeus' species since it is not always easy to tell from his descriptions just what insect he had in mind.

To be sure all insects are remarkable in one way or another, but listen to what the man from Ohio found out about this one.

"One peculiarity which attracted my attention was the ease with which the aphids walked over the surface of the water, or were found half submerged in an attempt to feed on aquatic plants. An accurate examination of the forms showed that on either side of the thorax were located three pairs of wax glands.

It is quite clear that this waxy secretion would be of the greatest value in keeping the insect from getting wet, as it not only projects out from the body, but is also powdered over the entire ventral portion of the thorax. While walking on the water this secretion is always in contact with the surface and serves as a float while the insect pushes itself along, moving quite as rapidly as on a dry surface."

A few years previously an account of the same insect appeared in *Science* under the title, "A Lacustrine Aphid."

In 1910 another entomologist found out that Linne' and the man from Ohio had been dealing with the same species and that its name, if written in full, should be *Rhopalosiphum (Aphis) nymphaeae* (Linne') (*aquaticus* Jackson) Davis.

BUT what has all this to do with the aphid on your plum tree? Nothing so far as any one knew until 1915, when an aphid detective in the backwoods of Maine fell to puzzling over the species attacking plum in that state. All except one answered to names associated with *Prunus*, but this one had never been named apparently. That little oversight was easily corrected—down went a name in manuscript. What it was does not matter now for it never got into print. Just before the paper went to press a publication arrived from Russia containing the description of a "new species" on *Prunus*—*Aphis prunorum* it was called. It looked, judging from its picture, remarkably like the unnamed plum aphid in Maine.

But what business had either the Maine species or *prunorum* from Russia in the genus *Aphis*? The swollen cornicles brought it nearer *Rhopalosiphum* didn't they?

Perhaps that clue didn't make the aphid detective jump! Why? Well, because there was a common species knocking around on water plants o' summers ever since the time of Linnaeus. It was a migratory species, too, in all probability; for how was it to winter on a succulent water plant? And didn't that species have swollen cornicles and an antenna like the "new species" on plum?

Out came the microscope, and the aphid from the plum and the aphid from the water plant could not be told apart on their structural characters!

Supposing, O, just supposing it should turn out that *Rhopalosiphum nymphaeae* (Linne') migrates to plum in the fall and deposits her overwintering eggs on its twigs and that the species lives on the plum in the spring until it is for it to go to the waterside for the summer months!

Now it is a difficult matter to follow an

aphid in its flight and find out where it goes when it leaves something else. But there is one time in the life of a migratory aphid when it can often be made to confess its own secret.

Potted water plants were brought to the laboratory early in the season, before the aphids were winged on the plum; and was it coincidence that at this time there were no aphids on the Arrowhead? Wait! On June 17 there were plenty of migrants taking flight from the plum. A few of these were captured, just as they were about to leave, and placed on the potted Arrowhead. And the nice little creatures folded their wings and dipped their beaks into the stem of the Arrowhead!

And five days later that same plant (shown in the accompanying photograph) was crowded with their progeny, many of them already half grown. If one of them dropped into water it paddled off unconcernedly for the food plant again. They were waxed without and the water did not penetrate. They were, indeed, no other than the "semi-aquatic"—the "lacustrine" aphid.

SO THE daughters and the granddaughters and the great granddaughters of the aphids that migrated from your plum tree last spring, dwelt on cool water plants for the summer, taking a swim now and then if they happen to drop. And then in the fall a generation with wings appeared and they returned to the plum where the overwintering eggs were left to provide for the messy sticky colony on your plum this spring.

While you are applying kerosene emulsion or tobacco spray, it may perhaps occur to you that Linnaeus would have been much interested if he had known what you do about that little Pond-lily aphid which hid its secret from mankind for more than one hundred and fifty years.



Where does the "black fly" of your plum tree come from each year? Ever notice lice on Water-lilies?

to furnish the entomologist with a salary, and for the naturalist to tell you a story about."

Yes, aphids have stories—and this is the tale that belongs with one of the plum feeding species.

More than a century and a half ago Linne' (or as he is more usually called Linnaeus) found an aphid on a Pond-lily and called it *Aphis nymphaeae* after the plant it was living on, an old and very good way of naming these insects, for many of them stick remarkably close to a single species of plant or a few nearly related ones. This kind, however, accepts on its bill-of-fare several water plants and not infrequently thrives in the aquarium.

It was in such a situation that a man, about ten years ago in Ohio, found a colony of these aphids and called them *Aphis aquaticus*, never suspecting that they had had a name ever



Arrowheads and other aquatic plants are often infested like this by plant lice that migrate to the plum in winter

At the Turn of Winter W. C. McCOLLOM

AS THE DAYS LENGTHEN ACTIVITIES IN THE GREENHOUSE BEGIN FOR THE NEW YEAR

FORWARD looking gardeners are glad when the end of December approaches for to them it means gradually lengthening days with increasing light, and in consequence an awakening of activity in plants under glass, and easing up of the actual management of routine operations in keeping plants growing. With diminished light and increased heat the problem of keeping the plant healthy is not always an easy one to solve; but as the end of December approaches the necessity for very close attention greatly diminishes. The difficulties of winter management of the greenhouse are wrapped up in those two facts, and it is a mistake to endeavor to force growth unduly during periods of dull light. The tendency is always to get the house too warm, which is bad in ultimate results. The best grower in the world cannot make a good plant ultimately out of one that in its youngest stages has been forced into a sappy, long drawn out, weak growth by too high a temperature in the absence of adequate light. For instance, if you are growing Sweet Peas too much heat at this time makes them soft and consequently an easy prey to mildew or aphids; and although there may be more flowers produced to the plant, the individuals will be small. Fifty degrees at night is the maximum temperature for this time of year; but when more ventilation can be given with less fire heat, a higher degree can be maintained.

Getting Flowers Early

PRACTICALLY all annuals make fine subjects for early spring forcing; that is, by sowing now you will have flowers in abundance during March, April and May or until the outside flowers appear. This will also add considerably to the variety of flowers in your greenhouse and while most of these plants will not force well during late fall and early winter, they will do well from this time on. Lavatera, Scabiosa, Stock, Candytuft, Zinnia, Clarkia, Arctotis, African Daisy, Sweet Sultan, Marigold, Cornflower, Calliopsis, Nicotiana, Calendula, Balsam are all available besides many others.

Antirrhinums are now recognized as one of our finest winter cut flowers. They force much better after the short days are passed, and are very easy to grow, if you do not try to hurry them with heat. Fifty degrees is ideal, and 90 per cent. of all trouble with Antirrhinum is caused by growing the plants too warm. The cultural requirement is to spray the plants frequently, feeding them freely when they start to flower and keeping them disbudded. The flowers keep well, have excellent stems, and have a fine range of colors. Mignonette is one of the rankest feeders of all forcing plants so feed it freely with liquid manures or mulch the bed with pure cow manure. Keep the strong shoots staked up and sprayed frequently to keep green fly in check.

Using Liquid Fertilizer

POT plants of Cyclamen, Primula, etc., can be fed freely with liquid manures when they start to flower. Begin easily and keep increasing both the strength and the frequency of the doses.

A word as to liquid feeding: Plants, like everything else that lives, like a little variety of diet. Make a practice of giving "balanced rations" so to speak. Sheep manure, cow



By a little tempering of the winter's cold many of the spring flowers can be had in late winter. Cut branches of flowering shrubs are easily brought into bloom indoors

manure, or good stable manure, all good fertilizers, are equally effective when used in liquid form; so also guano and any of the concentrated natural plant foods, and the chemical foods such as nitrate of soda, sulphate of ammonia, potash, can be used in liquid form. The general practice is to dissolve about a bushel of the natural manures in a barrel of water, letting it stand for a day or two. If you tie the manure in a loose sack, it will not clog up the spout of the watering can. The stronger forms such as guano or the standard concentrated foods should be used by dissolving an 8 to 12 inch potful in a barrel of water. A 5 or 6 inch potful to a barrel of water is double strength for the chemicals and should be diluted with an equal quantity of water before applying. These chemical plant foods should not be applied with the regularity that liquid manures are used but as occasional tonics to give the plants a good shake-up and accelerate root action.

Pushing on Early Flowering Shrubs

LATE in the month it is time to start cutting shoots from the early flowering shrubs (Pussy Willow, Forsythia, Japan Quince, etc.), for forcing in the greenhouse. Plunge the shoots into deep jars of water and keep the tops sprayed. Do not cut great quantities at one time, but rather a little frequently as the plants are improving every day because of the rest they are receiving. And they force much quicker and with better results later in the winter. But growing plants may be used too. Hard wooded forcing plants such as Lilac, Deutzia, Wistaria, are started by being placed in a cool greenhouse and the tops well sprayed until they show by the buds that root action has started, when they can be given more heat. Plants of this

type, if pot-grown, should be fed freely with liquid manures just as soon as growth starts. Hybrid Perpetual Roses for forcing in pots should be potted up just as soon as they are received. Use good rich soil and be sure the pots are properly drained. When potting ram the soil well with a potting stick. Roses dislike a wet, soggy soil that does not drain well; but in fact, nearly all plants do. The plants can be plunged in a cold-frame until they have been properly rested or they can be plunged out of doors and protected slightly.

Get Ahead on the Food Crop Supply

IT IS now time to think of next year in the vegetable garden. French globe artichoke sown now and carried along in pots in a cool greenhouse will surely fruit next season. Onions—those great, large mild ones—for salads, that are really more fruit than vegetable, are best sown now, and the seedlings can be "dibbled off" into boxes when large enough to handle and the boxes placed in a cool greenhouse until spring.

Sow lettuce, beans, cauliflower, radish, and spinach about every two or three weeks to keep a continuous supply on hand. Beets and carrots do not mature very quickly and if sown at intervals of five to six weeks you will have a proper succession. It is also advisable to sow a few pots of cucumbers occasionally to keep them on hand as the old plants sometimes "go off" very suddenly with stem rot.

Cucumbers and tomatoes growing in hills on the bench should have a top dressing, using the same compost as recommended for Carnations, but do not apply a lot at one time on the theory that if a little is good, a whole lot must be better. A little at a time, frequently, is the right idea. A good practice is to apply about an inch to the outside of the hills, when you see the white feeding roots showing through. Don't apply any to the top as covering the stems of the cucumbers is apt to lead to stem rot.

Carnations for Cut Bloom—Roses Too

FEEDING can be done now and it is a good practice to mulch Carnations under glass late this month; liquid feeding can be practised until such time as you are ready to apply the mulch. A mulch, however, is preferable to continual liquid feeding. Make a rich mixture, using well rotted manure and good turfy loam in equal quantities, and adding about one tenth the bulk of bone meal. Apply this mulch about one inch in depth, having the benches fairly dry at the time, first "roughing up" the top of the bench with a hand cultivator so the mulch will bind with the old soil; the bench should then be watered copiously. The same compost can also be used for Roses that are showing any indication of the lack of food. During dark, dull weather, Roses particularly and inside flowers in general, are very apt to be "off color." This is the direct result of lack of light. Feedings of soot occasionally will offset this. Dissolve an 8 inch potful in a barrel of water and apply it to the benches about once a week. Use it on all plants when the flowers are "bleaching out" which you will find more particularly with pink and red shades.

Organization in American Horticulture

WHAT THE VARIOUS SOCIETIES ARE TRYING TO DO, AS EXPRESSED BY THEMSELVES

[EDITOR'S NOTE: Much is being accomplished in a quiet way by the persistent effort of those devoted to particular flowers or interests to develop American horticulture along definite and cohesive lines. The benefit in each case accrues to people who garden in any form, but only a small minority of those who benefit actually support the organizations that are promoting their interests. This is partly due to the difficulty that the organization finds in getting in touch with those who might be interested. We have asked the representatives of the leading national organizations and special societies to interpret themselves to our readers. Letters concerning other organizations will appear in subsequent issues.]

The Premier of All Annuals

THE Sweet Pea occupies the premier position among annuals, in so much as it is the only annual which has a society devoted to it alone; and this unique position is deserved, for is it not one of the most valuable of all flowers? It is easily grown, surpasses as a cut flower, and by the use of glass may be had in bloom ten months out of the twelve.

The American Sweet Pea Society was founded in 1909, the exhibition and convention that year being held in the Museum of Natural History, New York City. The aim of the Society is to increase the popularity of its particular flower: *First*, by holding an annual exhibition whereat the most expert of our eastern growers usually exhibit, and at which the latest novelties can be seen. *Second*, by issuing from time to time bulletins containing advice and suggestions as to the best methods of cultivation, best varieties for various purposes, etc. The society conducts trials and variety tests at Cornell University, Ithaca, N. Y., under the direct supervision and control of Professor A. C. Beal, who also has written a number of comprehensive bulletins on the Sweet Pea, copies of which were distributed among our members. During the past nine seasons most successful exhibitions have been held in New York (three times), Philadelphia, Boston (three times), Newport, R. I., and Bar Harbor, Maine.

That the Society has been doing good work is noticeable by the ever increasing interest of the public at our exhibitions. The great advances made in the up-to-date methods of growing the Sweet Pea is evidenced in the competitive groups. The flowers staged now are immeasurably superior to any put up at our earlier exhibitions. Then again the exhibitor stages his flowers in a more artistic and attractive manner than formerly. The result of being in good company and trying to go "one better."

The officers of the society are at all times willing—nay, anxious to help the inexperienced, and invite the coöperation of all admirers of the "Queen of Annuals." The secretary is Wm. Gray, Bellevue Avenue, Newport, R. I.

GEO. W. KERR,
President.

Doylestown, Pa.

Putting the Rose on the Map

THE American Rose Society has since its organization stood for the orderly handling of Rose exhibitions in the United States, and for the registration of new Roses in a definite and simple fashion. Its influence in the direction of the greater shows of cut flowers has been notable, and the premiums offered and exhibitions held have emphasized the care and interest in this side of rose-growing.

Within the past three years, effort toward interesting and enlisting the amateur in the Rose army has borne fruit. The publication in succession of the 1916 and the 1917 *American Rose Annual*, the latter by impartial critics said to be a better volume than the famous *Annual* of the National Rose Society of England, has enlisted many interested Rose

growers all over the country in the Society's ranks. In fact, the increase has brought the membership of the organization close to 2,000.

The publication of the *American Rose Annual* has brought out many resources for Rose prosperity not previously available. For instance, the successive Annuals have discussed the hybridization of Roses so as to greatly increase interest in that fascinating and important art. Details concerning the wonderful new Rose species obtained in Western China by E. H. Wilson have been presented, and distinguished amateurs like Admiral Ward and Captain George C. Thomas, Jr., have given the results of their careful testing of new foreign introductions.

Not only has the investigation instituted through the publication of the Annual resulted in presenting more details as to the control of Rose insects and diseases, but as a result of the disclosure of the rather unfortunate situation as to lack of attention by any educational institution to Rose troubles there has been put to work a skilled plant pathologist, supported by public-spirited members of the American Rose Society, who is running down Rose troubles in a scientific fashion.

For the first time in the history of American rose-growing there has been prepared and published a carefully made list of Roses introduced in America from the earliest days of Rose hybridization. This list serves a most important purpose, and will be particularly in point in connection with the hope of the American Rose Society shortly to present to its members an authoritative catalogue of varieties current in American commerce, which catalogue would serve to classify, describe and accurately name the Rose subjects available.

The American Rose Society has started work to stimulate the holding of many June Rose shows in various parts of the United States, and it is believed that 1918 will see a great interest evidenced in shows in which the man with one good Rose opening on the morning of the show in his own back yard will have an equal chance for an award with the grower who works at greater expense and under more pretentious conditions. The thought is to actually popularize rose-growing.

One of the ideals of the Society is to bring the Rose into attention as a proper subject for shrubbery, through the description of the various original species and new sorts that are just as good as a Spirea, or a Deutzia, or a Mockorange, but have been overlooked.

It is believed that the American Rose Society has not only upheld the best traditions of rose-growing, but more recently has undertaken work which cannot but result in a vast increase of Rose prosperity in America. This increase cannot continue or the Rose situation improve as it ought to unless and until the interested amateurs the country over attach themselves to the Society. It was rather lamentable and remarkable to note recently in the beautiful *Journal* of the International Garden Club, published in New York, that free quotations were made from the English Rose Annual, and no knowledge evidenced that there was an American Rose Society or an *American Rose Annual*. Put-

ting it plainly, it is the work of the American Rose Society to get the Rose on the map in the United States!

The secretary is Prof. E. A. White, of Cornell University, Ithaca, New York, and he is always ready to accept memberships.

J. HORACE MACFARLAND,
Harrisburg, Pa. Editor of the *Annual*.

An Association of Women

A DOZEN women gardeners, farmers, and landscape architects met in Philadelphia early in 1914, to form an agricultural and horticultural association of and for women, an innovation inspired by the Woman's Farm and Garden Union of England. The objects of the Association were and are: Co-operation among women engaged in farming and gardening; exchange of ideas between members by means of local branches, exhibitions, conferences, and sale of produce by members on farms to those in towns; increase in the knowledge and use of existing institutions; encouragement of school gardening and vacant lot gardening; establishment of a standard for diplomas in practical gardening; the bringing together of supply and demand, producer and consumer, employer and employee, gardener and land, and individuals who might form a partnership.

Membership dues in the Association are one dollar a year; in local branches, two dollars, one of which goes to the Association, one to the Branch. In any case these fees include the subscription to the *Monthly Bulletin*.

We have now nearly two thousand members. We have held in the four years of our existence conferences in Philadelphia, New York, Boston, Washington, and Chicago. We have branches in Chicago, and Youngstown, Ohio; and New York and Boston are soon to organize.

This Association was begun by those who saw that teaching, stenography, book-keeping were not the only occupations open to women; in fact not always the best occupations for women. They hoped to make many see that an out-of-door occupation would be profitable in more ways than in money alone, though it would give a good living too.

We believe in farming and gardening for women. We believe in these as money-making occupations. We believe that the trained woman is the one who will most surely succeed in them; we therefore advise courses in farming and gardening for all who would undertake such work, these courses to be preceded if possible by some practical experience on the land that the nature of the work and one's adaptability to it may be fully realized. We publish a list of all institutions in the Middle Atlantic States where courses in farming, gardening, landscape-gardening, poultry-raising, bee-keeping, are to be had. We have helped women to positions on the land and provided many members with purchasers for their produce. We have now organized the Land Service League or Woman's Land Service. Under this Committee registration of women who want work on farms or in gardens or to care for poultry, and registra-

tion of those who have positions to offer is now being made. Bear in mind please the fact that this Association was begun before war was the programme of any but the Central Empires. Was it not "raised up" for just such an emergency as we now confront? Let me say here too that before the name of Hoover had re-echoed through this land, the watchword of the Woman's National Farm and Garden Association was "THRIFT and Beauty."

Beside our Woman's Land Service, we have a Committee on Markets and a stall of the Association has lately been opened in Jefferson Market, New York.

I should like space in which to give some idea of the variety of occupation of our members. All sorts and conditions of women belong to this widespread and democratic organization. From Mrs. Conrad of Indiana who raises the celebrated Poland China hogs with such success, to Mrs. Myrtle Shepherd Francis of Ventura, California, whose strain of Petunia seed is known the world over; from Miss Louise Shelton, whose books on flower-gardening are known to so many, to Mrs. Richardson of Iowa whose thousands of acres of alfalfa and whose other thousands of lambs are the envy of those who know them; from Miss Elizabeth White who grows in New Jersey the finest cranberries ever seen, to Dr. Effie Lobdell whose Georgia pecan nuts equal the cranberries, we have an endless variety of producers of food of all kinds, of fruit and of flowers. Also on our lists are numbers of landscape architects. And the value of all these women to the Association is that out of their own successes or failures they stand ready to help the inexperienced. It is an Association of women full of enthusiasm for out of door work, full of that friendliness for each other which is the accompaniment of all work in the open and full of a spirit of patriotism because it earnestly believes that women on the land can and will help our country to win this war. Miss Hilda Loines, 600 Lexington Avenue, New York, is the General Secretary of the Association; Mrs. B. W. Rosensone, 1653 Monadnock Block, Chicago, the Secretary of the Mid-West Branch.

LOUISE YEOMANS KING,
President.

Alma, Mich.

President.

Mulching—Successful and Otherwise

Making the Most of Mulches

MULCHES are useful as a means of securing good crops at minimum time and expense. While a well-applied mulch conserves moisture, checks weed growth, and improves the physical conditions of the soil, it in many cases also adds a considerable amount of plant food.

For garden crops aim to choose a mulch that is well adapted and which can be readily applied. Manure, in some form, is the best source of material for mulching. If fresh horse manure is available, allow it to aerate a few days before applying it to the crops. Spread the manure to a depth of four or five inches midway between rows of the crop, gradually thinning it to one or two inches near each row. At this rate of application, 35 to 40 tons of manure will be needed per acre.

In case fresh manures are not available, use rotted manure of any sort or resort to straw, leaves, moss, or lawn clippings. Bear in mind that the latter substances named have little or no value as sources of plant food elements. Shavings, excelsior or sawdust, may be a detriment to the soil if plowed

be wintered over, rhubarb, asparagus and winter spinach. If manure can be had for this purpose, work it into the soil between the rows in the spring.

Heavy straw mulches will be found a great help in the small fruit plot. Through their use, weeds will be kept down and excessive evaporation will be prevented during the occasional drouth of summer.

Gardeners practicing irrigation will not go amiss by using mulches in connection, especially where the hose method is resorted to. An evenly-applied mulch serves to distribute and conserve the moisture.

New York. E. L. KIRKPATRICK.

Mulching That Didn't Work

APPRECIATING the beneficial influence of most any kind of mulching, I have experimented with nearly all sorts of material during the last ten years. I have finally come to the conclusion that no mulch equals a dust mulch, where the soil is reasonably rich.

One of the most peculiar experiences I had a few years ago, when, upon the suggestion of a kind neighbor, I used lawn clippings to mulch rows of beans and tomatoes. The clippings were rather long and cured quickly to hay. They did not help but proved a decided nuisance when, after a heavy rain, wheel-hoeing became necessary. As a matter of fact, for a month afterward, they clogged the wheelhoe cutters and teeth and I said "never again."

There is an additional element of danger in using lawn clippings, even short ones, as a mulch. Unless they dry up quickly they are apt to mildew and infect the soil with acidity. If they are put on thinly, to dry up, they do not act as a mulch. If they are put on thickly, the lower layers will not dry up but fermentation sets in, especially if the weather turns rainy or cloudy. Whichever way you take it lawn clippings in our part of the world anyhow should be used with discretion and experimented with cautiously.

AN OHIO AMATEUR.



Midsummer peas with mulch, which is thickest in the middle of the space between the rows

under, and any mulch is more or less difficult to remove.

The time to apply a mulch is as the crop attains enough size to establish itself thoroughly; and apply the material immediately following a cultivation, if possible, gradually thin the mulch near the rows, since evaporation here is less, owing to shade produced by the plants. Moreover, feeding roots of the plants launch out from the rows in search of moisture and plant foods. Avoid placing the material against the plants. Discoloration of the stems is likely to result, while the lower leaves of the plant often turn yellow and drop off.

A little study of the crop in question will determine whether or not mulching will be worth while. Nothing will be gained through mulching early, quick-maturing crops, as lettuce, radishes and spinach, since sufficient moisture is available for such crops throughout their growing season. Mulches will be found of particular value on asparagus, rhubarb, mid-season and late peas, beans, celery, cucumbers, late cabbage and tomatoes. Use the mulch freely on the crops to

The Craftsman Woodpecker

One bird garden maker had as a dominant instinct the assistance of his feathered friends. Throughout his preserve he put up many houses. One day from the centre of his garden he observed two golden-winged woodpeckers, or flickers, fly over the inner hedge and scan with interest a nesting box, resembling a section of a tree stem. Unquestionably they liked its appearance—that is, all but the hole which challenged their criticism. It was too small for their large bodies to slip in and out with ease. The male bird gave a comprehensive glance at his mate and meeting evidently with her approval began to tap with his bill a circle about the hole. As soon as this drafting process was completed he took to the wing, she following. The builder of the garden conceived the idea of helping these birds. He called a man to bring a stepladder and small keyhole saw and under his direction the hole was made larger through following the marking made by the bird. Scarcely was the work accomplished when the pair flew back again. They looked at the hole, the male ran his bill around the enlarged hole, he looked at his mate and again they flew quickly away.—A. L.

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in December

(following dates are meetings unless otherwise specified)

- Minnesota Garden Flower Society, Annual meeting with State Horticultural Society, by announcement.
3. New Bedford, Mass., Horticultural Society.
4. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Garden Club of Pleasantville, N. Y.
6. Marshfield, Mass., Garden Club.
7. Pasadena, Cal., Horticultural Society.
8. Dobbs Ferry, N. Y., Horticultural Society.
10. Park Garden Club, Flushing, L. I.
- Rochester, N. Y., Florist Association.
- New Rochelle, N. Y., Garden Club.
- New York Florists' Club, New York City, N. Y.
12. Lenox, Mass., Horticultural Society.
- Nassau Co., Horticultural Society, Glen Cove, L. I.
14. Short Hills, N. J., Garden Club, Public Lecture.
- Connecticut Horticultural Society, Wethersfield.
- Westchester, N. Y., and Fairfield, Conn., Horticultural Society.
18. Lake Geneva, Wis., Gardeners' & Foremen's Association.
- Gardeners' and Florists' Club of Boston, Mass.
19. Rhode Island Horticultural Society, Providence, R. I.
20. Marshfield, Mass., Garden Club.
21. Pasadena, Cal., Horticultural Society.
- Dahlia Society of California, San Francisco, Cal.
22. Dobbs Ferry, N. Y., Horticultural Society.
24. Park Garden Club, Flushing, L. I.
26. Short Hills, N. J., Garden Club, Public Lecture.
27. Tarrytown, N. Y., Horticultural Society.
28. Connecticut Horticultural Society, Wethersfield

December in the South

DECEMBER is the month for the protection of all plants against the severity of the winter. The constant freezing and thawing is disastrous to newly planted trees and shrubs unless very hardy, therefore they should be held firmly in position by being tied to stakes so that the strong winds cannot dislodge them. Heavy snows will break down the evergreens; so tie the limbs together and brush the snow off as quickly as possible and while yet soft. Give tender Roses a slight mulching of coarse manure about the roots.

Keep snow and rain from celery beds by pine tags or straw, held down with boards put over in a sloping manner like a roof in order to shed the rain and snow. Spinach which needs little protection and then only in bitter weather is cared for by coarse manure between the rows, but never directly on it as it will become too tender to withstand the next severe freeze. Carrots, salsify, and parsnips can stay where they grow all winter without any protection after the cold weather is settled. Pull up cabbages by the roots and put in a conical shaped pile with root end up, covered with pine tags or straw, and then with a foot of dirt and firmed down with a spade; a tile put in the top of kiln for ventilation, and on top of tile a bent piece of tin, or inverted V fastened on to keep out rain or snow. Kale and turnip salad stay in the open ground all winter, and upland cress grows everywhere and is good mixed with the turnip leaves as a cooked salad.

Fig bushes and Hydrangea Otaksa can be protected by pine boughs or corn stalks tied about them; the former is much more sightly and is sufficient to keep off the sharp winds.

Coarse strawy manure is all that is needed on the Rose bed, and put on after the ground has frozen—a few tender Roses and standards may be wrapped about with straw or burlap.

AS THE hotbed is not in use for sowing seed until February it is a good place to put the sweet or Irish potatoes. Put first a layer of pine tags or dry straw on the bottom of the bed and alternate a layer of sweet potatoes to the top. Put on the double sash and in the daytime always ventilate by lifting the sash a little, and prop open with a brick. A root cellar would be a great advantage where there are a great many roots to store, but for an ordinary sized family, putting up the roots in kilns has proven quite satisfactory. Store Dahlias and Cannas the same way.

LETTUCE frames need constant attention. Put on the double sash and bank up earth against the frame to keep out the cold. Push the plants to maturity by constantly watering with liquid manure (only in the mornings in cold weather) and water between the plants so the leaves will not get wet. Lift the sash a little every day. One can have lettuce all winter with care and attention to these details.

EVERGREENS like Irish Junipers and others of value should be tied together with soft, but strong twine, to prevent whipping about by the winds, and breaking by the weight of the snow. Do not let the snow remain on the evergreens but brush it off before it freezes hard. Neglect in this has caused serious loss by breaking of the limbs.

If the weather is open and the ground not

too wet plant the Sweet Peas. Make a trench eighteen inches deep and one foot wide, and put in six inches of well-rotted manure, then a few inches of garden soil, and sow the seed on top of this and cover lightly with soil about three inches. Do not fill in the trench until the plants begin to grow in the early spring and then add the dirt gradually. It is better to plant Sweet Peas this month or even in January, for if planted earlier and they begin to grow the cold weather will kill them.

Tobacco stems scattered lightly over the lawn is a fine fertilizer. There is also the black muck, or humus, now on the market especially good for lawns which has the advantage over farm manure for the reason that it does not contain any obnoxious weed seeds.

If the orchard has not been pruned, do it now, and if there is any appearance of San José or oyster scale spray with self-boiled lime-sulphur. It will take several sprayings during the winter to be effective.

IT IS not too late to plant the early blooming bulbs, such as Crocus, Hyacinth, Tulip, Snowdrop, Narcissus, and Jonquil in the open ground. Bring the potted bulbs into the house every few weeks. Hippeastrum, Calla Lily and Amaryllis which have been dormant can be brought in now and fed with liquid cow manure. When planted in the pots a good light loamy soil should be used, and good drainage at the bottom with pieces of old broken flower pots.

Violets, English Daisies and Pansies planted in cold frames need plenty of air every day, and kept covered in bitter cold weather. Water only when necessary and then in the mornings. All of these flowers can be left in the open ground as they like the cold weather, and Pansies will bloom out of doors in a protected place all winter, but in order to have them to gather for the house it is better to have them protected from the snow. Violets and Daisies will bloom in great abundance in February in the frames.

Air the conservatory every day during the winter, being careful to keep the air from blowing directly on the plants. Only water the plants when they need it, and then very thoroughly, soaking the earth in the pots through and through. This is better than a light sprinkling every day, for the roots do not always get the water.

Keep the plants free from aphids, mealy bugs, mites and scale. Spraying with soap solution is good in most cases, but tobacco water is also efficacious. Begin when the insects first appear, so as to get them under control before the plant is injured.

Plant Paper-white Narcissus and Chinese Lilies in water with pebbles to steady them, every few weeks, and thus have a continuous bloom all winter. They can be planted in earth in pots also. They require six weeks to bloom, so the Xmas flowers should be started in November. Roman Hyacinths bloom in less time, taking only three weeks. Plant a few of these bulbs every few weeks so as to have continuous bloom.

With the bulbs, and Geraniums and Fuchsias, and the easy growing annuals such as Petunias, Verbenas, and Larkspurs one can have a very gay window garden with very little care.

J. M. PATTERSON.

The Storage of Potatoes

IT IS of great importance that all the potatoes raised last summer are handled properly in storage. Even when every precaution is taken the wastage of potatoes during the winter is considerable; under bad conditions of storage it is very great indeed. In order that the best methods may be adopted by the small growers, those who have not had the experience in the storage of potatoes should know the chief causes of the wastage.

These causes are: (1) Sweating, Heating and Consequent Rot: often due to insufficient ventilation; (2) Rotting: due to potatoes getting wet at the time of putting them in storage; (3) Injury from Frost; (4) Decay: owing to disease in the tubers at the time of storage; (5) Sprouting of Tubers in the Spring. It is not possible to prevent altogether losses from these causes, but by using the best methods of storage, it is possible to reduce them very materially.

Reasons of Loss

This may be done by taking care to guard against losses from each of these causes: (1) Sweating and Heating occur if the freshly dug potatoes are piled in too large piles, so that the air cannot circulate between the tubers. The risk of loss from this cause is greatest in the fall, immediately after the tubers have been dug, and it is, therefore, important that potatoes when dug should not be put in unnecessarily large piles, nor kept in an ill-ventilated room.

(2) Rotting from Getting the Potatoes Wet. If the potatoes at the digging time are allowed to get wet and to go into storage in that condition, rotting is sure to occur. Be careful to have your potatoes dry before storing.

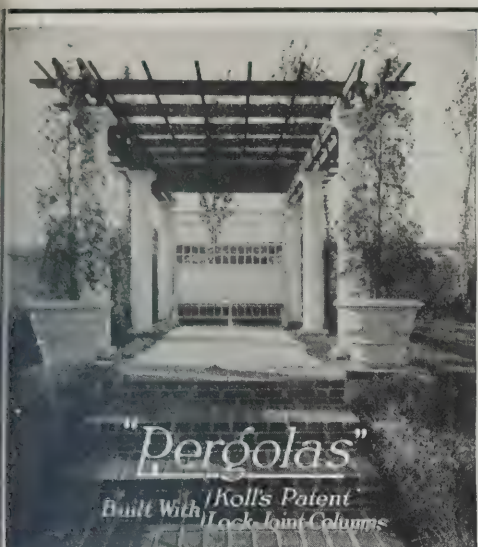
(3) Injury from Frost. Potatoes are easily damaged by frost. If they become frozen, their market value is destroyed. Therefore, take every precaution to protect the tubers from frost before and after digging.

(4) Disease. There are several diseases of the potato which destroy the tuber, and if diseased tubers are mixed with the sound ones, the disease spreads rapidly; therefore, it is necessary to sort the potatoes carefully, eliminating all of the disease, the cuts, culls, and dirt before placing them into permanent storage for the winter. All of the cuts, culls, misshapen and diseased tubers should be fed to the poultry and live stock, but should be steamed or boiled before being fed, as in this way you increase the food value, and also destroy the germs of the disease, so that it will not get into the manure and thence into the land.

(5) By proper ventilation of the cellar or storage room, and by holding the temperature as near 35 degrees F. as possible, you can keep the potatoes from sprouting.

Selection of Seed

Seed for next year's planting should be selected from hills that produce true to type potatoes. The right way, of course, is to select seed potatoes at digging time, and store separately in crates or boxes. By storing selected seed in a well-lighted room where the temperature can be held at from 34 to 40 degrees, with a little ventilation and planting next spring, the grower will make a start toward improving the quality of his potatoes, instead of as in the past, simply planting the culls or runouts.



Garden Accessories which are suitable and just the things required to lend cheer and pleasure to the surroundings of a home. When writing enclose 20c stamps and ask for Pergola Album, E-30.

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TOWNSEND'S TRIPLEX

The Greatest Grass Cutter on Earth
—Cuts a Swath 86 Inches Wide

Drawn by one horse and operated by one man, the TRIPLEX MOWER will mow more lawn in a day than the best motor mower ever made, cut it better and at a fraction of the cost.

Drawn by one horse and operated by one man, it will mow more lawn than any three ordinary horse-drawn mowers with three horses and three men.

Send for catalogue illustrating all types of TOWNSEND MOWERS

S. P. TOWNSEND & CO.

23 Central Ave. Orange, N. J.

GOOD GARDENS NEVER STOP GROWING

Why should they when glass properly managed makes Summer conditions below it and repels Winter above it? And two layers of glass with an impassable air space between them make the protection complete. Get



A Cold-frame, a Hot-bed, a small, ready-made Greenhouse or even some little Suntrap will make a highly efficient outfit. They last a lifetime. Immediate shipment. Complete catalogue on request.

SUNLIGHT DOUBLE GLASS SASH CO.
927 East Broadway Louisville, Ky.

EXCELSIOR
RUST PROOF
FENCE

For private gardens, lawns, estates, etc., as well as public grounds. Made of heavy, cold-drawn steel wires. Held together by patented steel clamps. Galvanized AFTER making, which makes it rust proof. Write for catalogue B.

Ask your hardware dealer for EXCELSIOR rust proof tree guards, trellises, bed guards, railings, gates, etc.

WRIGHT WIRE COMPANY, Worcester, Mass.

Order a living, lasting Christmas Tree



Does your Christmas sentiment end like this?



Or is it perpetuated like this?



AFTER Christmas, what are you going to do with the beautiful tree whose cheery color and fragrance gave so much happiness to all? Surely it deserves a better fate than the "ash heap." Then why not, for the same money you would pay for a scrawny, *dead one*, purchase one of our *living Christmas trees* like the beautiful specimen shown below?



We will ship you by express one of these shapely evergreens, with roots and dirt packed in a wood box. Decorate it with tinsel and ornaments for Christmas and afterwards *plant it outdoors* to beautify your lawn.

Add a tree each year and perpetuate the memory of your happy holidays. Should this be baby's first Christmas, the planting will become an historic event.

Give Evergreens for Christmas Gifts

Your friends would greatly appreciate a gift so useful, so beautiful, and so unique. We'll ship the living Christmas Trees express prepaid and charge to you along with our bill for the evergreens. Prices quoted in order blank below, include boxing.

A Wall of Green—An Unusual Gift

The following special offers should prove of particular interest. We look after the details of delivering and planting.

"Live" Screens to shut off a Noisy Street, in form of a Wall of Green, 8 ft. tall, \$3.18 per running ft., \$318 per 100 ft.

A Wall of Green, saves 10 years, \$6.60 per running foot.

A Group of Rare Evergreens for Foundation Planting, 32 Specimen Plants of various heights and shapes, \$36.

A Little Fruit Orchard, containing our own choice of a "Home Use Fruit Collection" of 13 Trees for \$6.

Appetizing Small Fruit Collection of Berry Plants and Roots, 170 Plants of many kinds, \$7.

A Grove of Big Shade Trees, with particularly brilliant foliage at different seasons, 12 Well-shaped Specimens for \$10.

Send for catalog, "Shade"



ORDER BLANK for Christmas Trees

HICKS NURSERIES, Box M
Westbury, Long Island, N. Y.

Send me at once the following *living evergreens*, packed in boxes of earth. Remittance enclosed. Ship express collect. 5 ft. Douglas Spruce, \$4; 5 ft. Japanese Fir, \$8; 6 ft., \$15; 8 to 10 ft., \$20.

NOTE: Cross out items which you do not want.

Signed _____

Address _____



An Ideal Christmas Gift

Bulbs that will develop into lovely, fragrant flowers; an artistic bowl in which to grow them, and special prepared Holland fibre in place of soil. Treat yourself or friends to this

Imported English or Japanese Bowl and Bulbs

Bowl in delicately blending colors of yellow or blue (your choice) together with Six Paper White Narcissi Bulbs and sufficient fibre to plant them for \$3.50. Or send \$4.00—and we will supply either six Roman Hyacinths or twelve Freesia Bulbs in place of the Narcissi. Complete directions for growing all FREE. We prepay express east of Mississippi, and guarantee satisfaction. Send for Free Catalogue to become acquainted with our full line of Quality Bulbs. It makes shopping in bulbland easy.

Max Schling, Inc. Seeds & Bulbs of Quality
22 West 59th Street New York City

Why Not Trees For Christmas?

What more appropriate gift for some of your nature-loving friends than a stately Evergreen tree? It will surely prove a gift least expected and longest remembered, because *it will live*. Our repeatedly transplanted Spruces and Firs make ideal Christmas Trees, guaranteed to grow if planted out, as per instructions.

Let Us Suggest Suitable Gifts

A great deal depends on where you live. Tell us what kind of plants, shrubs or trees interest you most. We'll help you avoid mistakes by telling you what may and may not be transplanted during the winter. Our complete Catalogue awaits your request. Let it acquaint you with Willadean Service.

Willadean Nurseries, Sparta, Kentucky



Real Live Trees for Christmas Use

Well-shaped Spruces—4 feet high or over—trees that you can plant in tubs or in the garden after Christmas is over.

Delivered for \$1.50
West of the Mississippi add 25 cents

Every tree will be packed with roots balled and wrapped. No orders will be accepted, nor trees shipped, after December 15th. Send orders at once.

Adolf Müller
DeKalb Nurseries Norristown, Penna.

Hardy Violas or Tufted Pansies

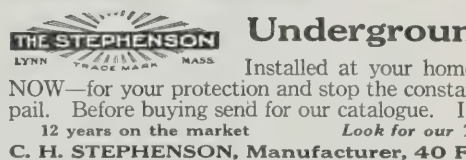
must be classed among the loveliest of our carpet bedding plants. The delicate, refined coloring of the flowers surpasses that of the common pansies.

We will book orders NOW, for Spring delivery, as long as they last, at \$3.50 per dozen, for any of the following superb sorts: Ariel, Aurora, Blanche, Blue Gown, Cecilia, Councillor Waters, Gen. Baden Powell, John Forbes, Kitty Bell, Maggie Mott, Marchioness, Moseley Perfection, Snowflake, Wm. Neil, and Wm. Robb.

Descriptive Booklet FREE

WOLCOTT NURSERIES, Jackson, Mich.

"HOW TO GROW ROSES"—Library Edition; 121 pages—16 in natural colors. Not a catalogue. Price \$1, refunded on \$5 order for plants. The Conard & Jones Co., Box 24, West Grove, Pa.



FREE TO GARDEN LOVERS

Wagner's Catalogue No. 73 of Roses, Plants, Trees, Shrubs, etc., will solve your garden problem and save you money. Write to-day.

WAGNER NURSERIES Box 943, Sidney, Ohio

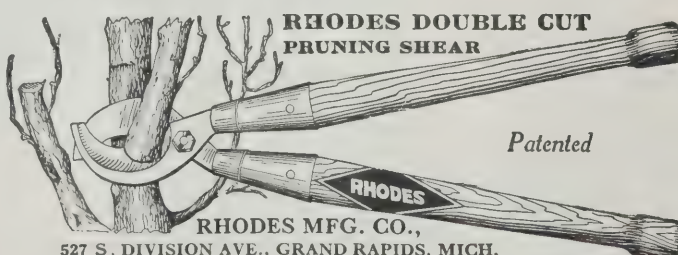


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Installed at your home—means less sickness in Winter. Act NOW—for your protection and stop the constant renewal expense of the frozen garbage pail. Before buying send for our catalogue. It will pay you.

12 years on the market Look for our Trade Marks Sold direct factory

C. H. STEPHENSON, Manufacturer, 40 Farrar Street, Lynn, Massachusetts

RHODES DOUBLE CUT PRUNING SHEAR

Patented

RHODES MFG. CO.,
527 S. DIVISION AVE., GRAND RAPIDS, MICH.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. All shears delivered free to your door. Write for circular and prices

My Experience with Cyclamen in the House

A POT of beautiful Cyclamen in full bloom was brought me last winter. It was my first experience in caring for that flower in windows, and it soon became a most interesting one. I observed that it was not fitted for the varying temperature of a house where one wants plenty of open windows in midwinter, for with a puff of cold air from a window away would go the Cyclamen flowers, buds, wilting as though hot water had been poured on them, so I found that the plant could not be moved about with impunity.

When the first flower slipped off and left its seed pod, curving like the head of a graceful young cobra, the plant became more interesting; when the second one left its seed pod, too, interest increased, for the two pods curled in toward each other and formed an arch over the entire plant. I decided to let them ripen, knowing nothing then of Cyclamen culture, but soon one of the stems wilted just below the pod, and I pinched it off at the root and left the other curving over the entire plant, alone. It took weeks and weeks for that one lonesome pod to ripen, and I husband-banded the plant with infinite care lest a draught should wilt the stem before the perfection of the seed. The plant seemed to be giving all its strength to that one pod, for never a new leaf came.

Finally, after patient waiting and watching I discovered a very slight break in the extreme end of the pod, and lest it should burst and the seed be scattered and lost, I tied a soft white tissue paper over it, and waited until the stem wilted of its own accord; and then waited yet a little longer, and pinched it off the stem, and opening the pod found twenty-one reddish seeds, which I planted at once in a shallow pot with broken things in the bottom for drainage. There was about an inch of soil over the drainage, and a covering of perhaps a quarter of an inch over the seeds. A square of glass covered the pot, and it was put in a curtained window free from drafts. The old plant now began to put up vigorous leaves twice as large and higher than previous ones, with very pretty markings and almost like wax in texture.

It took the seeds weeks to come up when I removed the glass. The seeds were planted on March 5th, and on June 5th there was only just sending its strangely curved first leaf through the soil, though there were later fifteen out of twenty-one seeds. As I write there are yet five seeds unaccounted for, but as long as there is soil there is hope that they will come forth. Several—in fact almost all that have a well defined first leaf also have put up a second, which varies from whitish to green and reddish in color, and no two have leafed the same either in manner or in shape and coloring, all varying from sharp points to blunt points and from dark green with faint markings to light green. The markings vary, too, some run with the veinings of the leaf and others follow the shape. I shall have a window box of Cyclamen from those now growing.

Altogether, I have never had so peculiar an interest in growing any plant, and I have window-cultured plants for many years for my own and my family's pleasure. The color of the flower on the parent plant was white with a faint rose base.

And now the parent plant is sending up an infinite number of flower buds, and the leafage is becoming shorter and smaller.

Brookline, Mass.

E. von R. HOVEY.

Christmas Gifts "DeLuxe" for Your Gardening Friends

Gifts that *prove* you have given serious thought to your friend's inclination, gifts fit for any home, gifts of a character that will create exceptionally grateful recollections, such is the gift line of



Moss Aztec Pottery

Offers a wide choice of objects for inside the garden home, from simple fern dishes and bud vases to impressive jardiniere and stands. The quiet elegance of Moss Aztec, created by unusual designs and exquisite colors, make it distinctly *the* Pottery for the critical.

Jardiniere and Pedestal \$6.00 delivered

Excellent modeled 9 inch Jardiniere, with 17 inch Pedestal to match. Order this great Christmas bargain as No. 216. Send for free Moss Aztec Catalogue TO-DAY.

The Peters & Reed Pottery Company
South Zanesville
Ohio

Dayton Rotary and Oscillating Sprinklers

will cover a circle, 80 feet in diameter or a half circle, of 3 to 40 ft. radius, with as fine a spray as a summer rain. Dayton Sprinklers are the ideal device



for Watering Lawns and Gardens

Of simplest make and best metal construction, trouble proof and long lasting. Adjustable to any kind of stream, operated with twenty pound pressure. Type shown is mounted on stand for hose connection. Send for descriptive price list and Special Offer TO-DAY.

Dayton Irrigation Co., Dayton, Ohio.

High Grade Seed

For Your Vegetable and Your Flower Gardens—Your Lawn—Your Farm

Our 1918 Spring Catalogue Issued Jan. 1st
Sent on request

Stumpp & Walter Co

30 & 32 Barclay Street

New York



Ideal Bulb Planter and Transplanting Tool

Opens holes from smallest to 4 inches in diameter. Ash handle, steel point, iron foot bracket—made well enough to give lifetime service. \$1.75 each, postpaid.

Now is the time to prepare

for next season's gardening activity, both indoors and out. Collapsible Paper Pots will soon be needed to start vegetable plants for early crops. Lawn Trimmers, Sprinklers, Cultivators and Garden Work Bags make acceptable Christmas Gifts. Write for booklet of garden accessories TO-DAY.

The Cloche Co., 131 Hudson St., N. Y.

Appropriate Christmas Gifts for Garden Lovers

Feed The Birds

Invite them to be around your garden. They will repay any little act of kindness and thought by helping you fight injurious insects. No other single factor we know of will attract them more than

Food-Bearing Ornamental Shrubs

Grow the following for both beauty and usefulness:—

Barberry, Japanese, with red berries.
Cornus mascula—Cornelian Cherry, with red fruit.
Cornus sericea—Silky Dogwood, with blue berries.
English Strawberry Bush, bears fruit all winter.
Amoor River Privet, with black fruit all winter.
Upright Tartarian Honeysuckle, red fruit in fall.
Yellow Flowering Currant, with edible fruit.
Rosa Carolina the wild rose with red hips.
American Elder, with purple fruit in clusters.
High Bush Cranberry, red berries all winter.

Price—Any of above averaging three feet high, 35 cents each

Splendid Christmas Gifts

To make bird lovers happy, we will send one each of above ten bird-garden shrubs for \$3.00. Orders booked now for Spring delivery. *This offer good only during December, 1917.*

A Helpful Catalog awaits your call. It is ready to acquaint you with the resources of our 800-acre nurseries, located in New Jersey and on Long Island. We are prepared to render the most *complete* service in plants in this country. If it's worth growing, we have it—in a quality beyond compare. Write or order NOW.

AMERICAN NURSERY CO., INC.
Singer Building New York City

Fear of Color

Fear is the greatest friend of the human soul—the ever-present guarding sense making for good health, safety, happiness, and prosperity. Ignorance is the only "Devil." Send \$1.00 for our booklet, "Fear of Color; Fear of Plants; Fear of Plants as Weeds." Revolution in vegetable gardening.

Sow seeds in wide rows, wide beds, narrow alleys. No hand weeding, no hand thinning, earlier maturity, better quality, less than half the labor, 2- to 4-fold greater yield. Onions, carrots, beets, etc., 1,500 to 2,000 bushels per acre. Special tools enable this by triturating the soil before and after planting, by which the soil yields up much more nitrates for the plants. The tools are \$1.00, \$1.25, \$1.50 each; set of two \$2.25; the three \$3.50. Money back if not convinced.

Berried Shrubs Attract Birds

Seedling berried trees and shrubs, 5 to 25 cents each. Seeds—large packet, 35c; 4 packets, \$1.00. Send for our booklet, "Art in Landscape Gardening," 50 cents the copy. Lists of seedlings and seeds *free*.

A. H. & N. M. LAKE, Nurserymen, Marshfield, Wisconsin



No. 60
ROBIN

No. 61
WREN

No. 62
BLUE BIRD

Protection of Birds as a War Measure

These Rustic Cedar Bird Houses \$1.25 each. The 3 for \$3.50. Increase Bird life and your garden will increase.

A. P. GREIM
"Birdville" Toms River, New Jersey

Something New and Novel as a 'Xmas Gift

Plants for a Garden

IN THESE days of conservation and economy, why give useless gifts? What more beautiful thought could be conveyed than the suggestion of plants or flowers that will remind the recipient of you, during the whole of the following year?

We have arranged the following series of SUGGESTIONS any one of which will be sent prepaid in the spring to any address you desire:

No. 1. 12 dormant, imported, two year old Rose plants; 6 varieties \$5.00

No. 2. 25 assorted Hardy Chrysanthemum plants . . . \$5.00

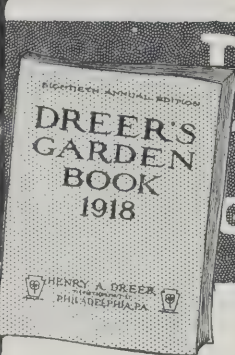
No. 3. 12 one year old clumps Perennial Larkspur, assorted colors \$5.00

No. 4. 6 dormant, two year old Rose plants; 12 assorted Chrysanthemum plants and 6 clumps Perennial Larkspur . . \$7.50

Send us your order now with names and addresses of friends to whom you wish the plants sent and we will mail them our special Christmas card in time to reach them by 'Xmas Eve' advising them of your gift of plants.

A "live and lasting" 'Xmas present everyone will appreciate

Charles H. Totty
Madison New Jersey



**Dreer's
1918
Garden
Book**

In the spring thousands of new gardens will be started to add to the food supply, and thousands whose 1917 gardens were not an entire success will try again.

Dreer's Garden Book is more than a mere catalogue. It is a companion of dependable information for the gardener; and if the expert cultural directions are followed will save money and disappointment. Tells when to plant, what to plant and how to plant.

It contains 256 pages, four full page Color plates and four duotone plates. Lists all the dependable, tested standard varieties of vegetables and flowers as well as the promising novelties.

Whatever is worth growing you will find in Dreer's Garden Book for 1918, with descriptions and cultural notes.

Mailed free if you mention this magazine.

HENRY A. DREER Philadelphia

THE most complete stock of hardy plants in America. Illustrated catalog of hardy plants, shrubs, trees and bulbs sent free on request.

ELLIOTT NURSERY COMPANY
326 Fourth Avenue, Pittsburgh, Pa.

ROSES

The aristocrats of rosedom are Fairfax roses grown on their own roots under slowly natural conditions (never forced) they are heavy, stocky and vigorous, and will bloom the first season, under ordinary care. Send for my free booklet which gives valuable information for those wishing an abundance of roses next Summer.

W. R. GRAY

Box 6,

Oakton, Va.

Plan Your Garden Now!

Get ready for big things in the spring. Install Callahan Duo-Glazed Hotbed Sash and defy frosts. Easily glazed, installed and cleaned. Perfect in construction.

Then crown your efforts with a Callahan Sectional Greenhouse—of any size you need—at profitable figures for you. Built in our factory and can be erected complete without delay. Catalogue on request.

CALLAHAN DUO-GLAZED SASH CO.
1320 Fourth St. Dayton, Ohio

Holiday Gifts that the Gardener Can Send

THE garden owner's opportunities for making gifts that are appropriate to the time and the season is indeed exceptional. The kitchen of the city apartment is not an easy place to put up preserves, jellies or pickles "such as mother used to make" and there is nowhere to keep them even if one were sufficiently heroic to attempt this kind of cooking in such cramped quarters. This year when so many are busy knitting or sewing for the Red Cross why not send something to eat instead of the usual "fancy work"? This will be in touch with the spirit of the times when economy is the watchword.

A glass of jelly, a small jar of rich preserves, brandied peaches, spiced fruit, grape catsup, jam, watermelon preserves, chili sauce, homemade mustard pickles, are among the most delightful of presents to receive. These can be sent safely by parcel post or express. Each glass or jar wrapped separately and packed in a box with wads of paper, or excelsior, hay or other soft material put tightly between to prevent the glass from breaking. If the new pasteboard containers are used so much care in packing will not be needed.

FRESH fruit in good condition is always appreciated. A box of carefully packed winter pears, a dozen big red apples (each one a perfect specimen), oranges, grape fruit—according to the section of the country—are none of them hard to send. Such things can, of course, be bought in every city market, but fine ones are expensive and many of them will have been on such long journeys or been for so long in cold storage that they have lost much of their original flavor. The average person greatly prefers fruit grown nearer home.

Then there are mince pies, fruit and spice cakes and plum pudding, all possessing the right Christmas flavor and all within reach of the country woman. These things are expensive in this year of high prices, but when you come to count the cost you will find that the outlay for a small mince pie is no more than for an elaborate sachet or a coat hanger decorated with superfluous ribbons. And it is a *very* dyspeptic person who would not prefer the pie!

Dainty little boxes covered with tissue paper or cheap flowered cretonne, or made of strips of bark glued on a pasteboard foundation, and filled with nut meats, either salted or plain, are another Christmas possibility for the woman who lives where the hickory tree, the butternut, the hazelnut, etc., are available.

WHERE chestnut trees are numerous why not use some of the nuts for home-made marrons glace? This French sweet that is considered so great a delicacy is just as easy to make over here as in Europe. The American chestnuts are smaller, but they have a finer flavor. Shell the chestnuts and then boil in a thick sugar syrup until soft. If you like the flavor put a little vanilla in the syrup. Then take the chestnuts out of the syrup, drain them and let them get thoroughly cold before wrapping each one in waxed paper to prevent sticking. If these are packed in a pretty box, one covered with holly paper or some dainty crepe paper, or cretonne or silkoline, they make a delightful gift.

PACKAGES of garden seeds, a box containing half a dozen choice bulbs carefully labeled and wrapped around with paper on which is written directions for their culture, sachets of dried Rose leaves mixed with spice and sachet powder, sachet, woodland treasures such as trails of Partridge-berry which may be planted in tiny pots or put in the glass bowls that come especially for that purpose make suitable gifts. Wreaths made of Christmas green, or Holly, or of Pine tassels decorated with tiny cones, bunches of Mistletoe, small spruce trees from a foot to eighteen inches high to be used for table decorations, all these can be used for Christmas remembrances and may be had from the nurserymen ready to ship. Pies and cakes should always be boxed. Pack pies with a pasteboard plate or round piece of pasteboard on each side to prevent breaking and loaf cakes with pasteboard stays put on in the same way before boxing. Smaller cakes should be wrapped separately in waxed paper and then each one tied up in white tissue or holly paper before they are put in boxes. Fruit must be sent in stout pasteboard, corrugated or light weight wooden boxes. Each separate apple or pear should be wrapped in tissue paper and then packed with soft wads of paper between to prevent bruising.

Recipe for Bayberry Candles

IN THE Bayberry country Bayberry wax candles can be made. It takes a quart of berries to make one of the fragrant candles. The bayberries need not be used when picked but can be dried and the wax boiled out of them at any time desired. To each quart of berries add two quarts of cold water. Boil steadily until a waxlike substance appears on the surface in patches. This must be skimmed off and saved. It can be left to harden and more added from time to time as fresh berries are collected. When sufficient to make two or three candles has been obtained in this manner it should again be boiled in water when all the dirt and residue of the berries that it contains will settle to the bottom of the pan leaving a pure fragrant substance of a soft sage green color. To make the candles hang three or four wicks from a stout piece of wire or a thin stick suspended from a shelf or any place where they will hang free and not come in contact with anything. The thick rather soft white string that bundles are sometimes tied with makes an excellent candle wick. Melt the wax in a pan small enough to give it the depth of six inches, for this is the height of the candle when finished. As soon as the wax is liquid take down the wire that holds your wicks, dip them in the hot liquid and hang them up again. When the wax is hard they must be dipped again and redipped until they have received thirty-five coats. When done they are very artistic looking objects covered with humps of wax tapering to a sharp point. But if one prefers, the wax can be poured in paper moulds made by winding stiff writing paper around a candle to get the shape and then gluing on a bottom of paper. In this a hole should be punched so that the wick can be run through the centre.

Wrap the candles alternately in red and green tissue paper and enclose in a small box covered with holly paper. Write on a Christmas card:

"A bayberry candle burned to the socket
Brings luck to the house and wealth to the pocket."

AMERICAN-GROWN TREES

Shrubs and
Plants

OUR ability to supply trees, shrubs and plants of the highest quality is not curtailed by the stoppage of foreign shipments. Buy nursery stock grown at Andorra.

Andorra Nurseries

Wm. Warner Harper, Prop.

Box 100
Chestnut Hill
Phila., Penna.

Our catalogue, "Suggestions for Effective Planting" on request.

King Greenhouses

Help You Help Mr. Hoover

These beautiful houses will supply your table with an abundant supply of fresh vegetables and fruits all winter long.

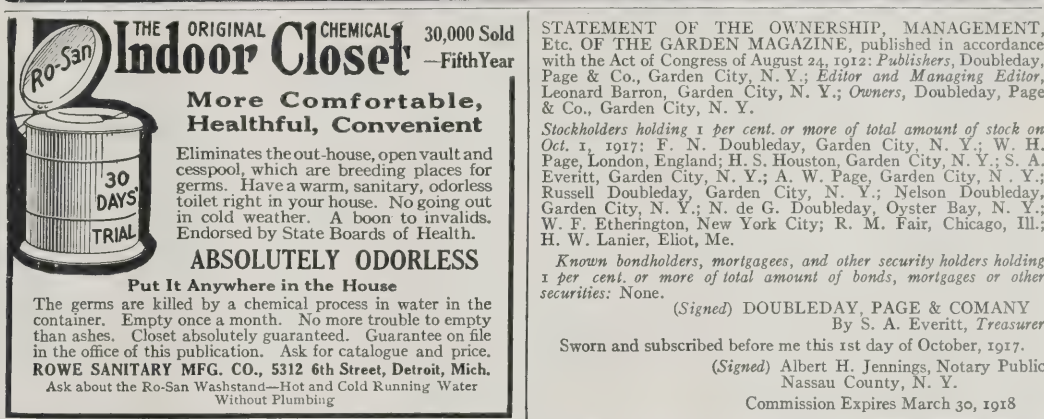
Write for our descriptive literature. Tell us the kind of surroundings with which you want your greenhouse to harmonize. Submit your ideas; then our experts will furnish plans and estimates for approval. No obligations on your part of course.

KING CONSTRUCTION COMPANY

ALL THE SUNLIGHT
ALL DAY HOUSES

390 King's Road, North Tonawanda, N. Y.

Branch Offices:
New York, 1476 Broadway
Scranton, 307 Irving Avenue
Boston, 113 State Street
Philadelphia, Harrison Building,
15th and Market Streets



DINGEE ROSES

Sturdy as Oaks

Dingee roses are always grown on their own roots—and are absolutely the best for the amateur planter. Send to-day for our "New Guide to Rose Culture" for 1918—it's free. It isn't a catalog—it's a practical work on rose growing. Profusely illustrated. Describes over 1000 varieties of roses and other flowers, and tells how to grow them. Safe delivery guaranteed. Established 1850. 70 greenhouses.

THE DINGEE & CONARD CO., Box 87, West Grove, Pa.



Verona Bird Houses

Give your bird friends a log house. A shelter in winter and a home in summer. The best bird house made. Price \$1.50. Three for \$4.20 f.o.b. Verona. Send for illustrated list.

W. H. BAYLES, Verona, New Jersey

THE ORIGINAL CHEMICAL Indoor Closet

30,000 Sold —Fifth Year

More Comfortable, Healthful, Convenient

Eliminates the out-house, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

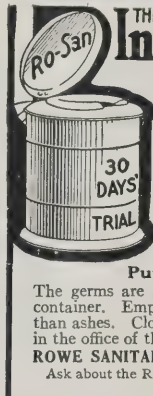
ABSOLUTELY ODORLESS

Put It Anywhere in the House

The germs are killed by a chemical process in water in the container. Empty once a month. No more trouble to empty than ashes. Closet absolutely guaranteed. Guarantee on file in the office of this publication. Ask for catalogue and price.

ROWE SANITARY MFG. CO., 5312 6th Street, Detroit, Mich.

Ask about the Ro-San Washstand—Hot and Cold Running Water Without Plumbing



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Stockholders holding 1 per cent. or more of total amount of stock on Oct. 1, 1917: F. N. Doubleday, Garden City, N. Y.; W. H. Page, London, England; H. S. Houston, Garden City, N. Y.; S. A. Everitt, Garden City, N. Y.; A. W. Page, Garden City, N. Y.; Russell Doubleday, Garden City, N. Y.; Nelson Doubleday, Garden City, N. Y.; N. de G. Doubleday, Oyster Bay, N. Y.; W. F. Etherington, New York City; R. M. Fair, Chicago, Ill.; H. W. Lanier, Eliot, Me.

Known bondholders, mortgages, and other security holders holding 1 per cent. or more of total amount of bonds, mortgages or other securities: None.

(Signed) DOUBLEDAY, PAGE & COMPANY
By S. A. Everitt, Treasurer

Sworn and subscribed before me this 1st day of October, 1917.

(Signed) Albert H. Jennings, Notary Public
Nassau County, N. Y.

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SAVE THE TREES—Kill San Jose Scale, Aphids, White Fly, etc., by spraying your trees with

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enable you to make any size yard or runway desired. Can be moved to other locations at will. Prices as follows:

7 ft. long x 5 ft. high	\$3.75 per section	8 ft. long x 2 ft. high	\$2.00 per section
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Above prices are for orders consisting of six sections or more and are F.O.B. cars Buffalo, N. Y. Best article on the market for young chicks, ducks, geese, and other small fowl or animals, also for enclosing small gardens in season. Place your order to-day! You will be well satisfied. Send check, money order or New York draft and we will send you the greatest article in the market for poultry or dog kennel purposes. Booklet 67A describing this system will be mailed upon request, with six cents to cover postage.

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SOMETHING NEW UNDER THE SUN

Garden hobbyists everywhere will be interested in two new devices designed to increase gardening results and joys

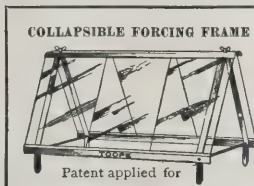
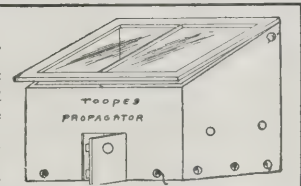
COLLAPSIBLE FORCING FRAME

For Forcing Vegetables, etc., is a rigid frame, so braced that glass cannot be blown out, and is water-tight. Price, \$1.25 each (without glass). F. O. B. Boston. Write for descriptive circular of these novelties. Most horticultural supply stores sell them.

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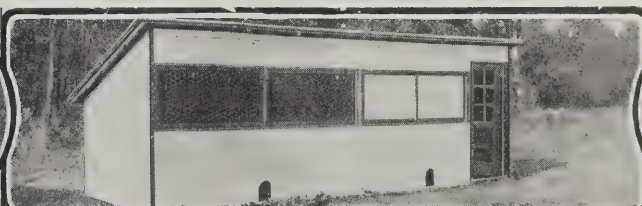


HODGSON PORTABLE HOUSES

The various models of these houses are arranged after the most scientific methods of raising poultry. Years of experience have proved this. The brooder can be operated outdoors in zero weather. The poultry house is made in sections that can be quickly bolted together by any one. The setting coop keeps a hen by herself while setting. All neatly painted. Send for illustrated booklet.

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Brooder for 50 to 100 chicks
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Gifts are always welcome and will help to save next year's crops, \$1.00 for three assorted or \$3.50 per doz. With three ply Asbestos Roofing, \$1.50 for three. Free to third zone.

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Also Bird Baths, Garden Benches, Fountain
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MR. ROBERT PYLE—the well-known Garden Lecturer and Rosarian invites correspondence from garden lovers and societies. Subject—"The American Rose Garden" illustrated with finely colored lantern slides. Address: West Grove, Pa.

LEPAGE'S

GLUE

HANDY TUBES

WILL MEND IT

Now for 1918!

Now that the crops are gathered,
it's time to take stock and prepare
for an even better garden next year.

IRON AGE Garden Tools

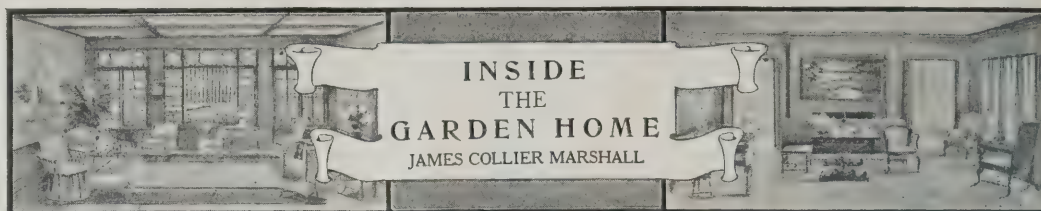
will make your work a lot easier and
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Some Good Things for the Small House

Mr. James Collier Marshall, Director of the Decorating Service of The Garden Magazine's Advertising Dept., will solve your problems of home decoration—color schemes, hangings, floor coverings, art objects and interior arrangements, making purchases at the most favorable prices. This service is free to our readers. Address inquiries to "Inside the Garden Home," The Garden Magazine, 11 West 32nd Street, New York.



Japan sends us this perpetual calendar of antimony

IF ONE is to judge by the number of interesting new articles of house decorations seen in the shops, it would seem that the war has had a good rather than an ill effect on domestic productions, for there are really many charming things available. This is particularly true as regards metal work which several years ago was an almost

neglected field but now most happily revived. To-day one finds really excellent designs in iron, steel and brass in architectural hardware and accessory decorations, while for fireside tools these new patterns are not only distinctive in pattern but equal in work-

manship to the old ones. Indeed, I have recently seen fire screens and fenders of hand wrought and engraved steel that needed no apology when compared with antiques. These base metals are being widely used for lighting fixtures and are very good-looking and effective when not too heavy. Very often they are tinted in antique tones of color to harmonize with the decorative scheme.

Apropos of lighting arrangements, one of the best of the new ideas is the use of perforated metal for lamp shades. These are made usually in the round empire shape of smooth joined metal sheet finely perforated and decorated with hand-painted designs that, showing to great advantage by day, seem fairly alive when lighted.

These punctured metal shades are to be had also in forms for ceiling domes, and they are by far the most attractive for this kind of fixture one can find. However, I have seen another interesting arrangement that may interest some. It was an homemade one and as dainty as it was artistic. Simply a crocheted net work to cover the plain half round glass bowls that covered the ceiling lights, and from this depended three netted fringes about two inches wide, one around the widest circumference of the bowl, at the ceiling, one half way down, and the third and smallest about three inches in diameter at the bottom. No descrip-

tion can give an idea of its charm. For intimate, simple arrangements it can hardly be surpassed.

Metal is being used considerably this season for trays, many new patterns of which are graceful in line and prettily decorated, the one pictured here having naturally painted roses on a black ground, though most of them have far more gorgeous patterns of flowers, with birds, parrots, in particular predominating, the American eagle being very popular.

Hanging baskets of various descriptions and bracket arrangements for flowers are also to be had in profusion.

These are decorated in any manner desired, though the Italian patterns seem to have a preference over all others. Of such is the bracket shown here, the half ellipse of tin being decorated with birds and flowers on an old gold ground all antiqued, while the bracket is of carved wood in antique gold.

Another goodlooking bracket has a scroll fenced shelf supported by an arm of acanthus foliage all painted in shaded gray green and gold, while the plant receptacle is plain green, the scroll fence forming its decoration.

There are some very good vases and low dishes for cut and growing flowers, to be found

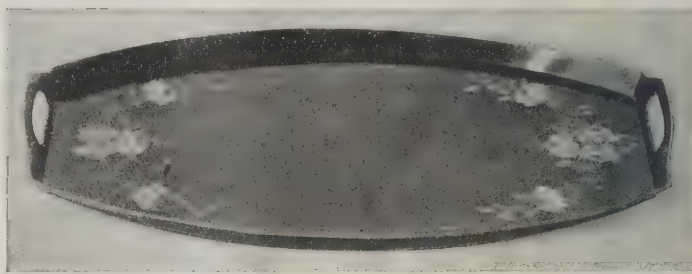
among the importations from Italy.

Like most of this ware, these are very gay in color and decorated with rococo flower and fruit patterns in relief. They are the best for dining table centre-pieces, since their shapes are especially adapted for fruits. These also may be had in open work pottery—quite an open basket weave in effect and rather bizarre in form, many of them being barge like; others are cornucopia shaped. All are ornate, though very effective.

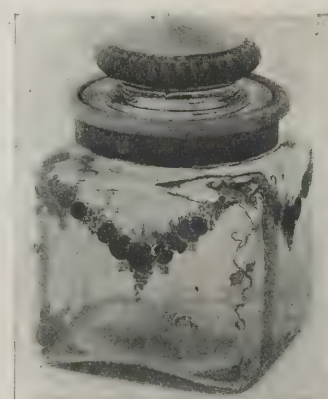
Entirely different, yet every whit as entertaining, is a new curate for tea table use, made of oak and brass. This little piece has two shelves, quite capacious—each will hold two plates, and this is so constructed that the whole folds quite flat, the oval shelves breaking in the middle.



Florentine patterns in antique tints decorate this excellent bracket tin for flowers



Exceptionally good for refreshment service is this dainty tray, decorated with deep pink roses and green foliage on a black ground



Floral festoons embellish this jar for fragrant salts to freshen the atmosphere

PLAN TO PLANT FOOD GARDENS

Your Seed Order—Beginners' Movies—Sowing for Summer Flowers

GARDEN

MAGAZINE

JANUARY 1918

PRICE 25 CENTS



Flowers * * are always fit presents—because they are a proud assertion that a ray of beauty outvalues all the utilities of man.—Emerson

Why You Should Secure Your Vegetable Seeds from a Specialist

The need of carefully planning the vegetable garden is more apparent this year than ever before. We must feed *the world*. We must not only make *more* gardens, but *better* gardens. The gardens must be made to yield *more*, and any *uncertainties* about the expected yields must be reduced to a *minimum*. Here is where the *specialist* comes in.

Vegetable seeds produced by a specialist are as nearly fool-proof as men can make them. They have been grown under the most exacting conditions, been subjected to searching tests as to vitality, and the purity of their pedigree is the best guarantee that they'll behave as their parents did, and bear the kind of crops gardeners are looking for. The hobbyist who plants *Gregory's Honest Seeds* turns results in the garden from a gamble into a reasonable certainty.

Thoroughbred Vegetable Seeds our Specialty for 62 Years

When the founder of our house started in business, home gardens were much more of a source of food than they are to-day. New England's Vegetable Gardens have always been famous because of the exacting seed requirements of the people. These we have filled for 62 years, and the character of the gardens made with Gregory's Honest Seeds bears witness to their inbred qualities. These we maintain by exercising unceasing care in growing them, on our own farms.

New England's Famous Pies and Gregory Squashes

Seed requirements peculiar to certain sections exercise very strong influences in business development. Because New England is particularly fond of pies, we started early to provide seeds of the best sorts suitable for being turned into particularly palatable food. Working along well-defined lines toward improved types and strains, we have originated more Squashes of real merit than any other seedsman. To-day, the name Gregory stands as a synonym for the best in Squashes.



Let these Pedigreed Strains boost Your Garden Yields

Bean, Warren. Perfectly stringless, flat, green-podded sort of great rust resistance. Very prolific. Pkt. 15c; ½ lb. 30c; lb. 50c.

Bean, Bountiful. Extremely early. Pkt. 15c; ½ lb. 30c; lb. 50c. Tremendous cropper, and the finest flat green podded ever been introduced. Entirely stringless.

Beet, Gregory's Impr. Crosby's Egyptian. The most thoroughbred early beet, with handsome roots of best flavored flesh. Pkt. 10c; oz. 25c; ½ lb. 85c.

Cabbage, Copenhagen Market. The largest of the early round-headed sorts. Of truly remarkable quality and a sure-header. Pkt. 10c; oz. 25c; oz. 45c.

Carrot, Danvers. Has produced forty tons per acre. Pkt. 10c; ½ oz. 35c; oz. 60c.

Corn, Carpenter's Golden Sweet. An excellent, late maturing, yellow-eared sort with a delightful flavor of its own. Pkt. 15c; ½ lb. 25c; lb. 35c.

Corn, Early Pocahontas. The large, ten-rowed ears are produced remarkably early. Quality unexcelled. Pkt. 10c; ½ lb. 25c; lb. 35c.

Cucumber, Davis Perfect. An excellent variety for outdoor use. Pkt. 10c; oz. 25c.

Lettuce, Gregory's B. S. Tennisball. A firmly folding butterhead variety that is very slow to run to seed. Pkt. 10c; ½ oz. 20c; oz. 30c.

Lettuce, Marblehead Mammoth Cabbage. The largest and crispest of all the "crisp-head" summer lettuces. Pkt. 10c; oz. 20c; ½ lb. 75c.

Onion, Gregory's Improved Yellow Globe. A heavy cropper of great dependability. Unsurpassed for winter storage. Pkt. 10c; ½ oz. 30c; oz. 50c; ½ lb. \$1.75.

Parsley, Arlington Double Curled. Very dark green, beautifully curled and of superb flavor and texture. Very hardy and drought-resisting. Pkt. 10c; oz. 25c.

Parsnip, Abbott's Improved Hollow Crowned. Long roots with smooth, clear skin. Does well in all soils. Pkt. 10c; oz. 25c; ½ lb. 80c.

Peas, Gregory's Early Excelsior. An exceptionally heavy cropper among dwarf, sweet, wrinkled sorts. Pkt. 15c; ½ lb. 25c; lb. 40c.

Peas, Gregory's Early Morn. The earliest of the large podded early wrinkled sorts, prolific and very sweet. Pkt. 15c; ½ lb. 25c; lb. 45c.

Radish, Scarlet Globe. One of the earliest round radishes. Grows to good size without becoming pithy or losing quality. Pkt. 10c; ½ oz. 15c; oz. 25c; ½ lb. 70c.

Squash, Gregory's Delicious. Unsurpassed in firmness of flesh, dryness, sweetness and exceedingly rich flavor. Pkt. 10c; ½ oz. 20c; oz. 35c; ½ lb. 90c.

Tomato, Langdon's Earliana. The earliest, hardest, and most dependable of all bright red, large-fruited sorts. Pkt. 10c; ½ oz. 40c; oz. 75c; ½ lb. \$2.50.

The packets contain sufficient quantities to sow a row, fifteen or twenty feet long.

All delivered postpaid anywhere in United States.

Flower Seeds, too.

All the popular kinds as well as many unusual novelties are on hand, all in "honest" quality and at "honest" prices. Our private growers are exercising the same painstaking care in the selection and saving of our Flower Seeds as we exercise with our Vegetable Seeds. Though in many items the supply is short, we expect to have enough to go around. *But, Please Order Early!*

Why You Should Order NOW:

Seed stocks of many of our most important specialties are limited. Early ordering is the surest way of getting your seeds. Mention that you are a reader of Garden Magazine, and your requirements will be filled with *particular care*. We know every reader of this magazine to be as exacting as our most critical customers.

We are offering such specialties only, as we know will please them. We can speak so confidently of the qualities of these varieties listed alongside because we know, from customers' reports, what they have done and are doing year after year, in gardens *throughout the country*. That best proves their thoroughbred qualities—they make good wherever gardener's care, soil, and climate combine to give them a fair chance.

Of course, there is a free Catalogue—

Those who have favorites of their own, not listed here will find most varieties of any consequence described in our complete catalogue.

Freely illustrated with reproductions from photographs, it will be appreciated by the beginner and "seasoned" gardener alike. In a straightforward manner it discusses the relative merits of the different types and kinds of vegetables for different purposes. The descriptions are based on observations made in our trial grounds. You will find the culture directions helpful in planning and planting your garden.

Write for your copy of this instructive book TO-DAY.

J. J. H. Gregory & Son, 10 Elm Street, Marblehead, Mass.

The Garden Magazine

VOLUME XXVI

JANUARY, 1918

NUMBER 6



AMONG OUR GARDEN NEIGHBORS

"Our Object is . . . to Win the War"

FROM "over there" on the Western Front, a letter by one of the GARDEN MAGAZINE organization bears this appeal: "This is no time for sentiment! Work, work, work, and send us men and men and men as well as ships, more ships, and more ships!" This is a direct appeal to each reader of this magazine. It presses home the needs of *increased gardening activity* during the year before us. It urges the putting to work of every bit of personal effort to make the earth fruitful, because without food, *what good are men and ships?* During the past year America took mighty strides toward becoming a land of productive gardens. But let us not rest on our laurels! Though much was done, much yet remains to be done to make us truly live up to every gardening possibility. Not only must more individuals become active in food producing gardens; but many, who already help to fill the world's larder, must contribute *more!* Small gardens must be made larger or, precluding such opportunity, must be made to yield more by more systematic planning and efficient managing. Large gardens must be made more productive of such foods as represent concentrated energy in the highest degree.

Put your garden on an efficiency basis as never before, thinking always of *how your efforts affect the country* and its conduct of the war rather than how the work benefits you, individually. All garden plans for 1918 must embrace the growing of more vegetables, fruits and flowers; the planting of more shrubs and trees that stand for permanency and real investment; the use of more modern tools to economize and shorten labor which thus becomes available for *the one big job* confronting us as a nation: the Winning of the War. *Your plans* should include a careful study of books on the subject of gardening, always keeping in mind that THE GARDEN MAGAZINE calls every month to help you score better results. One important aid to successful gardening efforts during the months to come will be found in the use of more and better tools! You must make *more* gardens and *bigger* gardens in *less* time with *less* help! This does not mean devote less time to gardening! But rather, to do in one hour what you have hitherto been doing in two. If you learn of a

better spade, a hoe that's easier to handle, an implement that will do more things in less time than could be done in the old-fashioned way, *get it;* and if you already know of such tell the Garden Neighbors about it.

Gardening with plants, shrubs and trees of a *permanent* character will assume a new significance. Why not commemorate important events by planting living monuments? Celebrate victories of "your boys" by setting out groves and orchards? What finer monument to man's wisdom than stately nut bearing trees, memorial shade trees, or evergreens, fruit laden avenues, or permanent gardens in which future generations may learn to forget much of the hate this war is sowing?

And then, there is the 1918 flower garden. Flowers are messengers from a world of cheer—"triumphant assertions that a ray of beauty outvalues *all* the utilities of man" as Emerson has expressed it. Flowers are sent to brighten somber days, to gladden the heart on happy occasions. Flowers will play their part as long as the world is swayed by human emotions. Though the war seems to be one of machinery, it still takes humans to use the machines, and humans are still governed by the eternal spirit of the race. *Grow flowers to carry your spiritual messages to friends in need of companionship.*

The well balanced garden will yield food for the body as well as for the soul. Grow more fruit! Fruit is nature's gift of wholesome nourishment served in most appetizing form. *Eat fruit and save sugar.* Eat nuts and save meat. By eating fruit from your own gardens you will save food for the fighting men.

In the vegetable garden, exercise wise care in selecting profitable kinds. Select varieties that yield double the crop of obsolete sorts in equal space. Grow such types only as yield a maximum amount of food per square foot. Grow more root crops for storage and other vegetables suitable for canning and drying. Grow no more vegetables of a perishable nature than you actually need. Above all, help husband our seed resources! While stocks on hand are ample to go around, the patriotic gardener will save and economize in seeds, for without them our last line of defense is threatened; and the President has well said "our object is, of course, to win the war."

But, Be Reasonable

THE approaching garden campaign for more food will be better planned than that of last year which was, so to speak, caught "on the run." The season was already well advanced when the appeal for more gardens was issued. The response was immediate, wonderful indeed. According to the annual report of the Secretary of Agriculture "The home-garden campaign of last spring and summer, part of the effort to increase the Nation's supply of war-time food, stimulated, it is estimated, the planting of from 200 to 300 per cent. more gardens than ever before had produced food in the United States in one season." But looking backward it is now obvious that some of the effort of last year was misdirected energy. Lawns that had cost hundreds of dollars were converted into second grade potato patches yielding but a tithe of their cost; golf courses were sacrificed in hysterical haste. These, and similar spectacular things; the while other and larger lands and fields behind were left untilled and unproductive. There is no excuse this year for even unintentional vandalism, not even in the name of patriotism. The problem before us is clear, and plans can be made to have necessary cultivable areas well in hand in due season. Equally as important as planning for plenty is accuracy in gauging one's requirements. Remember that it is just as bad economy to over produce and waste as it is to under produce and want. Space wrongly utilized is taken from effective production. Real economy lies in producing the right quantities of the right kinds at the right times, in which connection the carefully worked scheme on page 195 will repay studying.

We Want Daylight Saving

CONGRESS needs to be urged to pass the Daylight Saving Bill introduced into the Senate and unanimously passed by that body. Every home gardener could use one hour extra daylight every evening to great effectiveness. It would add millions of dollars' worth of produce to the country's yield. Daylight saving is already adopted by twelve European countries; Canada and Nova Scotia want it and are only waiting for us to act. Turning

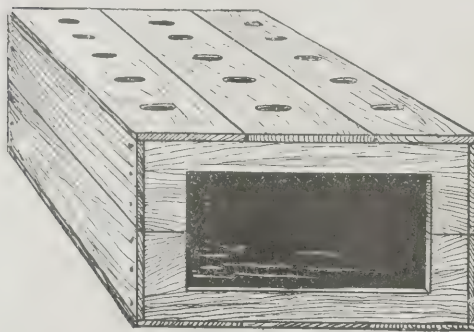
the clock forward saved 300,000 tons of coal in England last summer; France saved \$10,000,000 in coal and light. We need daylight saving! Send a letter to-day to your Congressmen and Senators urging favorable and immediate action. We must save coal and relieve freight congestion.

What Will Happen when an irresistible force contacts an unmovable body?" Until this month I have never had a satisfactory answer; now I have! Quack grass taught me: The irresistible force will go through the unmovable body just as dozens of quack grass rhizomes went through potato tubers.—M. G. K.

Topworked Apples.—The Iowa Experiment Station is interested in investigations concerning the topworking of desirable apples upon hardy stocks, and wishes to secure information from any one having facts respecting observations and experiences of the matter. Any published reports of observations, experiences or experiments bearing on this question in bulletins or in popular or technical horticultural literature will gladly be received by S. A. Beach, Chief Dpt. of Horticulture, Ames, Iowa.

Home-Made Potted Plant Fumigator.—In most homes one of the greatest deterrents to the having of some potted plants is the difficulty in keeping them free from lice or scale, while if these pests are not kept in check the plants are greatly injured, if not entirely ruined. Even though fumigating with tobacco is an effective way of keeping down the pest, in most homes there is no suitable arrangement whereby such fumigating can be done without at the same time subjugating the family also to the fumigating. A few years ago, while visiting in Montreal, I chanced upon a French woman using an ingenious but simple device in fumigating her potted plants.

To construct it, first secure an oblong box at least six inches deep—an old soap box serves



Practical fumigator for house plants

very nicely—and bore several rows (the number depending on size of box) of one-inch holes in the top of it. These holes should be about six inches apart each way. Then in one end of the box cut an oblong opening large enough to admit your hand and a saucer. Next, take several (again depending on size of box) old stiff paper flour sacks, unfasten along the side and bottom folds and paste together into a strip that will just go around the box and lap well, thus giving you one large bag of a size to just slip snugly over the top of the box. In fitting together the bags allow a liberal width overlap at all seams



Sand Lily (*Leucocrinum montanum*) a white Crocus-like flower of the Rockies blooming in spring

so that they will be air-and-smoke tight. To use, place the pots of plants that are to be fumigated on the perforated top of the box, arranging them so as to cover but few (or none) of the holes. Next place on an ordinary earthenware saucer a couple of tablespoonfuls of ground tobacco and upon this drop one or two live coals. Place the saucer inside the box, draw the air-tight flour-sack hood over the box and tie tightly at the bottom. The amount of tobacco will vary with the surface size of the box and air space within the hood. But it is well to remember that in fumigating, a relatively light treatment performed twice, a day or two apart, is as effective in destroying the lice as is one heavy fumigating which may be so heavy as to injure the plants, temporarily, especially when one is not experienced in gauging the amount. The kind of tobacco to use is that known as ground tobacco and which can be secured for a few cents an ounce at all horticultural supply stores.—L. G. B., Schenectady, N. Y.

The Long and the Short.—I was taught that a vegetable garden should be planted in long rows for convenience in working. This may be all right for horse cultivation, but I have found that the small, hand-worked garden is better in several ways if the rows run crosswise. More or less walking through the garden is necessary in planting, working, weeding and spraying. In long rows, this traveling is done between the rows, and the surface soon gets tramped down to the detriment of the vegetable growth. If the garden is not very wide, the rows may extend across its width, but sometimes it is best to have a narrow pathway through the centre, and work each way. Thus much of the work may be done from the path and the outer margins, without trampling the soil. In sowing small stuff after digging the ground over, I use a long, wide board, using the edge to mark the rows, and walking on the board to do the work of fertilizing and sowing. In this way, the work is finished without a foot-fall on the loose earth. Weeding, fertilizing and spraying can be done with much less trampling of the soil. Vegetables like radishes, lettuce and beets, which require thinning and frequent gathering, can be secured much more readily. Corn, and possibly other plants, will be better pollinated if in several short rows side by side rather than in one long

one. If necessary to spray certain vegetables, it is more readily done when all are in a block together than in a long row. From about every point of view, the crosswise short rows are preferable to the longer rows.—F. H. Valentine, Ridgewood, N. J.

The Sand Lily.—Among half a dozen of the earliest and really lovable spring flowers which are characteristic of the mountains, is the Sand Lily, *Leucocrinum montanum*; literally, a White Lily-of-the-Mountain. In method of growth it is not unlike the Crocus. It has narrow, grass-like foliage from a cluster of fleshy roots instead of a bulb or corm, and the miniature white Lilies are borne on the slender flower-tubes in generous profusion. The clumps increase in size quite rapidly so that a large plant will produce in a season one hundred or more crystal-white, fragrant blossoms within a period of a few weeks. Curiously, the fruiting portion of the flower is never elevated above the ground-level, so that the seeds are ripened below the surface and probably are scattered by birds and mice who seek them for food. The Sand Lily grows naturally in soils varying from clay to a light loam, preferring a medium loam, a sunny position and good drainage. In the East it may be grown appropriately as a rock-plant or in any sunny spot not excessively wet. It has demonstrated its ability to thrive and increase year by year in cultivation far from its native habitat, and it promises well as a garden flower.—D. M. Andrews, Colo.

An Experiment with the Potato.—Last year a great many people made a study of "the kindly fruits of the earth." I have been one of them and I am going to tell you what I discovered by experience. The most important thing seemed to be the potato. The question was how to get the best and fullest results at the minimum expense. I found it was quite possible to eat your cake and have it. We had the potatoes peeled in the ordinary way, cooked and ate them, and then planted the peelings, making sure that there were at least a couple of eyes to a hill. The result was a fine crop of potatoes and as many in a hill and as large in size as though we had planted the quarterings. With potatoes as high as they were last spring this was a great economy. When it came to digging them up we changed our usual methods. We had always pulled the vine up and cleaned the hill out. Not so last year. There are always quite a number of very small potatoes clinging to the vine. They are too small for use and are usually thrown away. Last year we dug all around the hill, getting out all the large potatoes and left the vine with the little potatoes in the ground. By fall the small potatoes were big ones and consequently there was a second crop out of the wastings. That ended my experimenting with the no longer humble spud. I felt I had learned quite a good deal.—Emily Halson Rowland, Conn.

Pepper Vine.—Bernard H. Lane, of Washington, D. C., writing of the Pepper Vine in the February (1917) GARDEN MAGAZINE, expressed the wish that some venturesome gardener north of the Mason and Dixon's Line would try it and report. So I wrote that I was venturesome enough to try it on the bleak northwest side of a New Jersey hill, and in the spring he sent me

several roots. They went into the ground in April, one in a protected southwest corner and the others where they are exposed to the northwest wind. Not until June did any life show above ground. Once up, the three in favorable soil thrived mightily. Those in poorer soil never reached a height of more than a foot, but the three in favorable soil reached an average height of fifteen feet by September, growing straight up that distance without branching or the slightest variance from the perpendicular. Neighbor Lane so well described the Vine last February that I will only say its beauty fully justifies his enthusiasm. Next June I will report whether the vines have survived the winter.—*Arthur McCausland, New Jersey.*

The Climbing Hydrangea.—In this Japanese climber, *Hydrangea petiolaris*, we have one of the best vines for use on large wall spaces and also on the trunks of large trees in certain cases where the use of a vine would be permissible. Although introduced to gardens more than forty years ago, it is not so widely known as it deserves to be; for certainly a well established plant when in the glory of full bloom is a most attractive subject and compels admiration. It is perfectly hardy in Massachusetts and seems to grow well in any aspect, although the maximum amount of flower is produced only in the full sun. The main stems cling closely to the support by means of Ivy-like roots, the rate of growth being moderate, though eventually attaining forty or fifty feet in height. In this locality the plant is at its best about the end of June and a fine showing is made by the large, flat clusters of white flowers. These clusters are eight inches or more in diameter with comparatively few sterile flowers, but still sufficient to make them very conspicuous. The foliage is pleasing all through the season and apparently free from the attacks of insect pests, which is not the least of its merits. The photograph shows a flourishing specimen planted more than thirty years ago on the south side of a church.—*H. E. Downer, Northampton, Mass.*

English Material for American Gardens?—If I have a criticism of THE GARDEN MAGAZINE it is this: that often one finds, in the same or consecutive numbers articles on, say, bulb growing or vegetable gardening (intensive), advice of conflicting nature which, to say the least, is somewhat confusing to the amateur who is not always able to sift the wheat from the chaff and consequently in despair "gangs his ain gait" with indifferent results. A suggestion is to obtain and publish accounts and pictures of well known English gardens, with latest English methods as adapted for use on this continent. These would help to fill in during the summer when apparently it is not easy to obtain interesting copy. The advertisements are good and useful, but here again it is not always easy to sift, though I believe one does not go far wrong if one discards those which pretend to offer bargains and relies on those whose prices seem, but are not, high.—*H. L. MacCalbane, Ontario, Can.*

—Gardening is not an "exact science;" only the principles are universal; practice will, nay must, vary with the individual, and therein lies, to a great extent, the alluring charm of gardening. But what may seem to be conflicting advice, may not be so at all on a careful analysis of the conditions of the two cases. The beginner will always find some

problems to solve; even the most expert gardener has new experiences from time to time. We try our best to teach the bed rock facts of gardening, applied to American conditions by experience, and we fear that our correspondent's confusion would be worse confounded by filling our pages with foreign articles. The disastrous history of early gardening in America is largely due to the effort to copy English garden material in a climate where it does not fit. The effort was

foredoomed to failure, only the early gardeners did not know it. This generation does.—*Ed.*

Sweet Corn, and "Sweet" Corn.—In THE GARDEN MAGAZINE for last March you published an article "Which Sweet Corn and Why" which, in spite of its many excellencies, I think is somewhat confusing, and may lead many amateurs or beginners to waste another whole season trying to get sweet corn



Is there a more handsome flowering hardy woody vine than the Climbing Hydrangea? (*H. petiolaris*) Self-supporting and attains a height of nearly 50 feet

by planting the white varieties. For the author describes one breed of Crosby as "of very choicest quality;" White Evergreen as "Choicest strain" and Country Gentleman as "Best Flavored of all real table kinds." Two of these are extremely misleading and the description of Country Gentleman is absolutely false. Not any of these are worthy of being classed as "sweet corn," now that Golden Bantam is on the market. The descriptions are still more misleading on account of the faint praise given Golden Bantam and the omission of Black Mexican. The reasons for my writing on this subject are two: First. When I first began planting a home garden several years ago I did not know much about varieties and had to depend on the descriptions. As no real distinction was made between the sweet and the tasteless corn and peas, I wasted a large part of my time, ground and energy, until I had tried and discarded most of the so-called popular sorts. I suppose thousands of people are going through the same experience, and no doubt many of them will give it up in disgust when they find that the stuff they are advised to grow is no better than that raised to sell and selected solely for its appearance, shipping and keeping qualities, and productiveness. Second. I would like to find a better yielding variety than Golden Bantam, but just as

sweet. As I cannot believe the catalogues, or even THE GARDEN MAGAZINE, I have stopped experimenting except with the yellow kinds. I am having a similar trouble with peas, Blue Bantam being the best I have found so far.

Now I solemnly protest that you are not doing your duty by your readers, that you are hindering the development of amateur gardening, that you are discouraging that class of gardeners, and even contributing to the high cost of living when you disseminate such misleading statements as those contained in the article above mentioned. In my opinion all the white kinds of corn that I have tried ought to be put down as "tender field corn" not as "sweet corn."—*Albert E. Fay, Worcester, Mass.*

—It was an error to print after Country Gentleman "Best flavored of all real table kinds." The word "real" should have read "late." Black Mexican is not recommended because it discolors the cooking utensils in a fashion most discouraging to the housewife. The six kinds of white sweet corn recommended are the choicest of about twenty distinct sorts and strains available. Since 75 per cent. of all the people in this country still look with suspicion upon all yellow corn offered as a sweet corn, it is obvious that an article designed to serve the country at large cannot confine itself to Golden Bantam. If Mr. Fay cares to "take a chance" with a pea

that I consider superior to Blue Bantam in both flavor and yielding power, let him try Little Marvel. It is sweeter, though the pods are not as large.—*A. Krumh.*

—Speaking of yellow corn let us enter a word for Golden Orange as a sweet corn for the home gardener. The ear is larger than Bantam, and the ranks are two more on the cob; it makes a stronger, taller stalk. Sown very early it seems to be less hardy so is not a substitute for first early. Late sowings last year gave us no difference in maturity; but (and herein lies its merit) it has a longer period of quality; moreover it does not "crop" all at once, thus giving a longer season to the patch. At least that is how it behaved last year in our garden.—*L. B.*

Extravagance of Collards.—In the South I had heard so much of the collard I thought I would try it. It grew nicely but had two great faults that made it not profitable as a substitute for cabbage. In the first place, the leaves are loose, and grew and curled out instead of in, so it took up too much space. Three collards took up the same amount of room as five cabbages. The weight, too, had to be considered. It took five collards to equal the weight of one small cabbage. So collards were crossed off my list.—*Emily Halson Rowland, Conn.*

PLAN TO PLANT—THE CALL OF 1918

THE NATIONAL EMERGENCY FOOD GARDEN COMMISSION APPEALS TO THE READERS OF THE GARDEN MAGAZINE

NOW, gardeners of America, comes the call of nineteen-eighteen. To you who were members of that great army of Soldiers of the Soil last year the call is a joyous one for your labor was well done. But this year that army must be doubled. Each of you must enlist at least another to produce "Food F. O. B. The Kitchen Door." The joys of work in the soil none know better than you, and so you must bring with you a recruit for this great work of patriotic planting. Your boys are in the trenches and they must be fed. You do not have to be a soldier to shoot; for the home grown ammunition, making a barricade against General Hunger, is just as important as the aim of the man who directs the firing of the "seventy-fives." The staggering load the god of war demands we carry in the shape of a food problem is best told in the figures that estimate the number of men under arms. That number is thirty-eight million. The estimated cost of feeding a soldier has been placed at forty cents a day. Reduced to money that means that the daily food bill of the soldiers of the world now at war is \$15,200,000 a day.

These men have suddenly been withdrawn from the economic scheme of things and have become non-producers. This puts the burden upon each of us to produce more food than ever before. The Kaiser, we are told, has every inch of available ground under cultivation, and every prisoner able to walk is at work tilling the soil. The enemy realizes what the food question means. Are we to sit by and see the boys we have sent to the trenches fail for the lack of food? If they do fail it will be for but one reason—for the American soldier will die fighting and in the name of Humanity let us not let him die starving.

To the work of the war gardener last year careful estimates credit food valued at \$350,000,000. The importance of this is best shown in the tremendous food bill of the armies of the world which I have just cited. But there is another great reason for increased war garden production. There has been a tremendous rush to our cities because of the call of war work. Housing problems confront every municipality as they never have before. City councils and chambers of commerce are taking up means of solution everywhere. On one page we read of suggestions to relieve crowded conditions and on the very next page we read suggestions for enforcing farm labor. Everywhere the farmer is calling for help. There can be but one result of this rush to the cities and that is increased cost of living. Right here the gardener is destined to play a great part in this war. It is for him to produce close to the point of consumption and thereby save not only handling charges but relieve railroads of as much of the transportation burden as possible.

As never before the thought of the people has been turned back to the soil and to the value of land. Mother Earth is kind, as you gardeners know, and she will continue to be kind to us as long as we do not desert her and forget her in this mad rush to the cities in an endeavor to gain war wealth in dollars. Those dollars will avail you nothing without proper food and health which go hand in hand and can only be obtained from the soil. The hand of Hunger must never grip this land and it never will as long as the gardener, that Soldier of the Soil, enlists as he has enlisted in the past to "do his bit" for Liberty and his Country.

Washington, D. C.

CHARLES LATHROP PACK,
PRESIDENT OF THE COMMISSION

THE MONTH'S REMINDER, JANUARY 1918

*Bare Twigs are laced against the moonlight sky;
Yon icicle on the eaves gleams like a knife,
But from the hearth the crackling flames leap high,
And here my paper garden stirs to life!*

THE purpose of the *Reminder* is to call to your attention the things which should be thought about or done during the next few weeks. For full details as to *how* to do the different things suggested, see the current or back issues of THE GARDEN MAGAZINE. (An index of contents is prepared for each completed volume, and is sent gratis on request. The Readers' Service Department will also cite references on any special topic if asked—that's its job.) To get the full benefit of this department, check off with a pencil, ✓ in the square provided for that purpose before each paragraph, the items that apply to your own case, and use the page as a reference list.

ONLY a foolish or an inexperienced gardener considers January a "nothing-to-do" month. January should be the time of preparation for the entire year's garden campaign. Every move, change, and new undertaking is to be planned in detail. Supplies and materials of all kinds should be studied up and ordered.

Above all—start this month a garden record or diary in which to keep track from time to time of all your garden activities. There is no necessity for such a diary to be "written up" every day. But vegetable and flower planting dates; variety names of hardy perennials and shrubs, Roses, etc.; seasons of bloom; dates of killing frosts; and many other things will be of inestimable value to you in improving your garden work of all kinds from year to year. And now to this month's work!

The Vegetable Garden

□ Choose the situation for and determine the size of your garden. If ground is frozen, mark out with stones. Get accurate measurements. "Go easy" if this is first experience—resist temptation to attempt too much.

□ Plan your garden. Work out all details. Put them down on "made-to-measure" plans. It is much easier to do it now than when you are ready to plant—saves time, seeds and disappointment!

□ Order your seeds *early*! This year's seed stock is lowest in many years. Seedsmen have to be governed by old rule "First come—first served." Be among the first! Get the varieties you want, and have your seeds on time.

□ Order your fertilizer early. Prices are high but—*use a full supply*! Vegetables are high too. Don't risk having poor crops this year.

□ Overhaul, repair and paint tools. Don't just *think* about this—do it! Nine garden tools out of ten are worn out by neglect, not use. Make yours the tenth. A worn out, dull and rusty tool is a tremendous handicap.

□ Order new tools now. Deliveries will be slow—transportation slower. Don't take chances. Tools have gone up in price, but not as much as labor and vegetables—money spent in good tools will be a better investment than ever before.

□ Begin to get your supply of manure. Thoroughly rotted, short, fine, fairly dry. You can't have too much. A good manure pile is advance guarantee of a successful garden—the best there is.

Do you keep a pig? No joking! If you have room to fix him a 3 x 6 "place in the sun" where he can tramp and root your manure between times, he makes a mighty good investment—increases the value of the manure and turns all waste food from table into real money.

The Flower Garden

Not much doing here, but—

Scout around and see that the mulching on hardy border, Rose bed, hardy bulb bed and so forth is in good shape. Sometimes our De-

cember winds loosen or blow it off before snows have had a chance to settle it. Watch for mice in mulching on Rose beds and bulbs or where leaves have collected around shrubs. Use traps; and remove and replace if necessary.

□ Make definite plans for any new flower gardens or re-arranging old ones. The hardy perennials may be moved easily *early in the spring*. If they have been in several years, a shift will do them good.

□ Order hardy perennials now for delivery as soon as your ground is ready in the spring. You may lose a season's bloom by having them come late.

□ Include bone for your flowers along with your fertilizer order: "inch-bone" or "knuckle bone" for lasting results in making up new beds, bone meal for top soil and for top dressing to rake in in the spring. Bone is great stuff for blooms!

The Greenhouse

Business enough here—first active work for the new year!

□ Get everything in readiness for the under-glass drive that begins next month—first move in your 1918 garden operations. Get all your accessories in shape. Make new flats—two inches deep for starting seeds, three for transplanting. Wash all empty pots. Soak for forty-eight hours, scrub with fine sand and stiff brush—cleans out the pores so air can get to the roots. Make a seed board and planting stick to help in putting in seeds. Get a fine "rose spray" for your watering can for watering seedlings, its bad business to wash them down with a heavy spray.

□ Prepare soil for starting seeds—fresh loam (better if baked or steamed to kill weed seeds), one part; humus, or sifted leaf mould, two parts. Add sand "to cut" if necessary.

□ Prepare soil in advance for potting and transplanting plants. Good clean garden mould, with humus or leaf-mould enough to make light and spongy; add a pint or so of bone meal or bone flour to the bushel, thoroughly mixed through. This should stand for several weeks before using, so that the bone will be immediately available to plants when used.

□ Test all old seeds. Place between thick pieces of blotting paper, constantly kept moist; or, better, start in soil under same conditions that you expect to have in starting seeds next month.

□ Start stock plants from which to get cuttings. Geraniums, Heliotropes, Paris Daisies, Begonias, Coleus, and other stock plants which have been carried through should now be started into active growth and pruned back quite severely so as to give a good supply of cuttings next month.

□ Start vegetables for forcing under glass. Cucumbers, tomatoes and melons (all "warm blooded" plants), are good to follow winter crops of lettuce, radish and so forth as the days get longer and there is more sun heat. To save time, start them in advance in pots, to set in beds or benches as soon as space is available. Use thoroughly well rotted manure and light soil, half and half. Paper pots

are easier to care for than clay pots—don't dry out so often, and give the roots more room.

□ Start cauliflower now for growing in frames or in greenhouse. Put seedlings in individual pots as soon as large enough to handle.

Keep blooming plants well fed—fine bone, liquid manure or liquid nitrate of soda, a tablespoonful to a watering pot—will all help to keep late blooms up to full size.

Keep up cultivation. Both flower and vegetables require air in the soil, as well as moisture and warmth to make good growth. Never let a crust form.

□ Divide or bench Ferns now for new plants. The new season of growth begins about this time. Old plants cut up and repotted will make shapely, new plants by next fall. Old plants which increase by "runners" set in the bench now will furnish a new supply of plants in this way. It will save time to root new runners directly in pots plunged in soil. After rooting, just cut off runner and you have new plants all potted up!

□ This is also time for Azaleas to make a natural start. Buy or bring in a few plants—start slowly in cool temperature.

□ Start another crop of Sweet Peas now. You do not want to be without these beautiful flowers during the spring months. Put in a row or two (where they will have plenty of head room) of the "Christmas flowering" or "greenhouse" types.

Keep plants in general healthy. Days are short and cold but some fresh air should be given practically every day—early in morning while sun is bright, and the temperature of the house is on the increase.

Fumigate regularly. Don't wait for bugs to appear. A few cents worth of aphine or Blackleaf 40 and a few minutes' time, once every week will keep the house clean. This is especially important now, because of crowded conditions bound to exist during February and March.

The Frames

□ Next month will be hot-bed time—but *now* is the time to get manure for heating or enriching soil. Preparation must begin the three weeks or so before time to sow seed. Manure must be composted, bed made, and allowed to cool down before it is safe to plant. Get busy!

If you are running any frames through winter, remove snow from sash as soon as possible over growing plants. Snow over dormant plants that are being "wintered over" is a good thing—keeps out both extreme cold and bright sunshine, equalizing conditions in frame.

Be careful to keep all drains and gutters *outside* of frames clear and free from surplus snow. A sudden thaw may soak or even flood soil in frames with bad results.

□ Repair sash and frames now. They will not be needed until next month, but then you will have your hands full with other things. It is a slow job which should be carefully and thoroughly done. If left till later will be

slighted, and loose glass will mean breakage and frozen plants. Do it now and do it right. A coat of paint is good insurance.

Give ventilation frequently, even if temperature inside does not make this necessary. Fresh air is important to health of plants—and it discourages diseases and bugs.

Small Fruits

It is not too late to mulch strawberry bed if you haven't yet done so. It protects against spring "heaving," and plants from starting into growth too early.

□ Were your cane fruits, raspberries, blackberries and so forth gone over to remove all canes that had fruited at the last bearing season? If not, do the work now. Cut *old* canes back to ground. Cut back long tops of new growth likely to thrash about in wind. Go over currants and gooseberries in careful search for any wood that may be attacked by borers—affected shoots are light colored and wrinkled and shriveled, instead of sound and plump.

□ Prune currants and gooseberries if not done last fall—will save valuable time next spring. From currants cut out some new growth and the oldest growth to leave good shapely, open bush. Don't be afraid of over-pruning. Leave wood two to four years old, as this bears best. Gooseberries especially need to be kept in wide open form to allow free circulation of air in summer to protect against the "mildew," the great gooseberry trouble. Long branches, reaching over to the

ground should also be cut back. Mildew is likely to get a start on leaves resting on soil or grass.

□ Prune grape vines as early as possible. They are one of the first things to start in the spring, and the flow of sap is so great that injury or even death may result from "bleeding" if work is done too late. Ninety-nine per cent. of grapes are not pruned enough. Cut back last year's lateral growths to two or three buds—even if you remove more than half of total wood, no matter.

Espaliers and fruits trained against walls need protection from winter sun—arrange a screen of evergreen boughs, corn stalks, or something similar to the *south* of them, if they are in a sheltered, sunny position. Mulch about roots also, to prevent growth starting up prematurely in the spring. This should be done now, while ground is frozen hard.

The Orchard

Watch the young trees carefully, to see that they are not being injured from rabbits or other rodents, when the heavy snows keep them from getting at their other sources of food. A heavy tarred paper tied around trees will protect them.

□ Don't put off your pruning! Good resolutions won't produce good fruit. Spare the knife and spoil the pippin—or Winesap, or Mackintosh, or whatever it may be! Remove first, all broken or diseased wood, second, surplus growth or crossing or rubbing limbs;

third, branches or parts of branches interfering with the general shape or development of the tree. Make all cuts clean and neat—remember that a bruised, broken end will not heal quickly, and invites disease. Remember that the "bud" nearest the cut you make will be the one to make most rapid new growth, and in the direction that the bud points. Choose the point for cutting accordingly. Don't leave a long stub above the cut, nor cut close enough to weaken the bud.

□ Don't neglect winter spraying. This is absolutely essential to have good fruit. Strong sprays can be used now, while trees are dormant. Work must be done thoroughly to be effective. It is best to go over trees twice. On quiet days, if possible, to be absolutely certain of covering every square inch with the spray.

It will pay to "scrape" old rough barked apple or pear trees before spraying. Regular tree scrapers cost thirty-five or fifty cents. The back of a draw-shave, old carving knife, or any stiff piece of metal will do for a few trees.

When pruning, also, clean out old wounds and cavities, rotten wood and so forth—these can be treated and filled later but cleaning them out now will destroy insect eggs or disease germs harboring there, and save time in spring. Bad cases need expert operators.

□ Have a sanitary orchard—all prunings, trimmings, and old fruits, rake up clean and burn. Don't leave possible sources of infection to plague you next season.

The Beginner's Garden W. C. McCOLLOM

(Supplemented by the pictures on facing page)

CHATTING ABOUT SOME OF THE FIRST PRINCIPLES "THAT EVERYBODY KNOWS" AND WHICH ARE USUALLY TAKEN FOR GRANTED

WHY do so many gardens begun with good intentions in spring, wind up in disappointment in midsummer? Good money is spent—unstintingly for seeds of Jones Giant Tomato and Smith's Everbearing Bean. Everyone is saturated with the "garden spirit," new implements are purchased—a clever salesman, could, I believe even (at this season) sell a contraption guaranteed to keep the flies brushed off the plants; but in August, that same salesman couldn't sell a bucket of water to the owner of an impoverished garden. Is it lack of knowledge or lack of interest that causes the trouble?

THE truth is that too many people get a wrong start and in consequence are discouraged before they can see the light and so steer out of the sea of trouble. Now then; how goes it with you? More vegetables than you can possibly use in early summer followed by a positive famine? That is a common fault from the time honored practice of starting the entire garden at one time, calmly assuming that the "early", "intermediate" and "late" peas will mature true to form without regard to weather or to sort and give a perfect succession from June until frost. But that was last year, and last year's gone. There is time now to get things in order for a proper start this year, time to plan so as to have gardens full of quality

vegetables at all seasons and all through them, too.

NO ELEVENTH hour inspiration ever made a really good garden; good gardens are planned with care, the crops are allotted with an understanding of their individual requirements—quick maturing crops so arranged that they can be succeeded by others, and so on. The whole atmosphere of a really thought out garden is one of business-like calculation applied to gardening, and it is only as they receive thought and study in advance that gardens will be successful.

Have you ever studied garden strategy, laying out your garden with care and thought, the same way that a General arranges his fighting forces? We are all prone to think ourselves Pershings and Haigs; yet in the garden, our only place to operate, we can get our artillery in front of our infantry and our machine guns in the rear! Introduce a little of this kind of skill into your gardens; it is interesting and constructive garden work and will pay dividends this summer.

MAKE a sketch of your garden to scale, make it large enough so you can have movable cutouts to represent the different crops, which will assist wonderfully in arrangement—other articles in THE GARDEN MAGAZINE give the distances apart required for these crops you grow. But bear in mind

this: crops that are to remain in the ground all summer should be kept to one side of the garden, this is plain practical sense; the balance of the space can be used as a plotting field for you to exercise your strategy.

What "Exposure" Means

THE "ideal setting for a garden" as the books always begin is a clear landscape to the south. That is because the sun shines from that direction. If possible trees growing on the south side should be removed; and it is better if the east and west side are clear of tall trees. The only trees that actually belong in the "production garden" are fruit trees and they should be on the north side—unless, of course, they are dwarfs, in which case they may be set out for effect as their roots are small and the tops are not serious shade producers. All cane fruits can be arranged in an orderly manner around the sides of the garden rather than in rows that cut up the garden area into small plots. Where possible let the rows run north and south to equalize the light; but if this can't be done use a little judgment in planning so that the tall or shade producing crops are confined to the north side of the garden.

Two "Practical" Groups

IN ORDER to simplify our planning we consider the vegetable crops in two classes: (1) those that are sown but once during the



Burn out insect nests in trees, using a flaming torch on the end of a convenient rod



When snow hangs on the evergreens rake it off to prevent breakage of the branches



Save time by pruning back any fruit trees or dwarfs that need control



A wire brush is by far the best tool for cleaning up tree trunks; better than scraping

Garden "Movies" No. 1

A PAGE OF PICTURE HINTS OF WORK
TO BE DONE AND THE TOOLS
TO USE DURING JANUARY

(Photograph by W. C. McCollom)



Making hay before the sun shines! *i. e.* getting acquainted with the new catalogues and sending in orders early. Most important this year



Transplant shrubs while dormant, and moreover the ball will hold firmly now. Don't move without a ball



After the ground is frozen put the mulch on the herbaceous border—to keep it cold remember; warmth is likely to cause rotting



Use some of your spare time to cut out old wood of small-fruit bushes. Use a pruning shears and cut quite low down

season; (2) those that mature quickly and are renewed from time to time. The times of sowing the various vegetables will be discussed elsewhere and in subsequent issues; our present purpose being to consider them only in reference to the plan.

Crops sown or planted but once are: Jerusalem artichoke, French Globe artichoke, lima beans, running pole beans, bush limas, brussels sprouts, cardoon, celeriac, chard, chicory, egg plant, various herbs, kale, leek, muskmelon, watermelon, okra, onions (seeds and sets), oyster plant, parsley, parsnip, pepper, potatoes (early and late), celery (early and late), pumpkin, squash, rutabagas, New Zealand spinach, squash, sweet potatoes, tomatoes.

Crops that require more than one sowing are: bush beans (wax and green), beets, carrots, chervil, cress, cucumbers, corn, endive, kohlrabi, lettuce, peas, radish, broad leaved spinach and turnip. A sub-division of this class would be cabbage and cauliflower which are handled as "companion crops" and two distinct sowings are made—one in early spring in the hotbed or greenhouse, and one in early summer for maturing in fall.

Selection of Types

IF YOU suppose that all *varieties* of the different vegetables are alike in their requirements or behavior you are mistaken. There is as much difference in the flavor, growth and productive value of different varieties as there is between two different breeds of cattle. We should know something of these differences if we are to order our seeds with any degree of intelligence. For instance, if you want quantities of beans at the minimum of effort—regardless of any other factors—plant the running pole types, such as McCaslan or Kentucky Wonder. They are of reasonably good quality *if picked when small*. Real quality in beans, however, is found in the pole lima, it will also certainly out-yield the bush type since the pods are longer and contain more beans; but—and here's the point—some folks can't get poles, and must resort to the bush lima. The dwarf green beans are undoubtedly the easiest to grow and yielding wonderful fall garden crops. The wax podded type of the dwarf bush bean is on a parity with the green bean except in color—but some few people prefer the yellow pod. Shell beans such as the white marrow or kidney, are also of the dwarf type. Here are different types of beans—which one do you need?

The Variety a Personal Matter

WITH many vegetables it is simply a matter of selecting varieties that are good yielding and of a quality that measures up to your personal standards; there being little, if any, difference in the treatment of different varieties. Some may mature a few days earlier than others, some are a little better in flavor, others may yield more heavily or are not so susceptible to natural weaknesses of their family. But from a planning viewpoint it makes little difference whether you grow "Crosby's" or "Electric" beets or "Rocky Ford" or "Emerald Gem" melon. Groups of this class are beets, carrots, corn, cucumber, egg plant, kohlrabi, leek, muskmelon, okra, parsnip, ruta бага, chard, and turnip.

Pumpkins and squash are of two distinct types, although both are sown at one and the same time, viz.: (1) early maturing suitable for summer use, (2) the hard skinned sorts that

are grown only when wanted for winter as they are better keepers.

Potatoes offer early and late varieties; the late types keeping better (not getting past so early in winter as the early varieties.)

Onions are started from seeds or sets, "What's the difference?" The sets or young bulbs mature much earlier, thus giving onions from your garden long before the seedlings will be ready—but bulbs grown from seed, however, keep better. Therefore, plant just enough sets to give a supply of early onions and for the main crop start from seed.

Tomatoes differ somewhat in type: there are numerous small fruited varieties that can be used in salads, etc. They are wonderful producers, and, obviously, only a very few plants of this type need be set out. Your "profits" will accrue from the large fruiting type. The same is to be said of peppers: there are several of the small pickling "hot" peppers of which one or two plants will suffice, the main crop to consist of the larger types, which have many uses in the home.

There are two distinct types of "spinach": New Zealand spinach (only so-called, for in fact it is not a spinach at all) is started from seed and will grow vigorously throughout the whole summer, and can be cut several times all the year; the other type or common garden (true) spinach starts early in the season, matures quickly and is soon gone by. It is only useful in spring and fall as it will not stand the hot weather and will run to seed before it can be cut.

Peas are companion crops to the common broad-leaved spinach. Successful gardeners always sow a row of peas when they sow spinach. The differences in peas are between the dwarf and tall plants and the round and wrinkled seeds or grains. How to use them? Plant tall peas wherever possible as they are better yielders, and it is easy to rig up some means of supporting them, and remember the wrinkled seeded peas are the only ones worth growing in home gardens, because of their *quality* and ease in shelling. The round seeded peas are good yielders; are more hardy and are, therefore, oftentimes used for first sowings, but if you want quality plant only wrinkled varieties. Radishes are also sown with the peas and spinach as they are also a spring and fall crop. They are successfully grown in summer only when well irrigated and partially shaded.

Lettuce is to be considered in four groups. Use the large head type for spring and fall sowings. These varieties are unquestionably the best in quality. For summer sowing in the garden use small head types because of their heat resisting qualities—not running to seed as quickly as the large head type. The curled or non-heading type is also available for summer and even though these varieties lack some of the essentials of tip top quality they are the best for summer, even excelling the small head types. Romaine is like a large type of lettuce, satisfactory for spring and fall but will run to seed in summer if not kept well watered and partially shaded.

Of celery we can have "early" or "late": now this does not mean that the one actually matures ahead of the other. The distinction is based on character of growth—the "early" varieties will bleach during summer, whereas the "late" varieties will not bleach until the weather gets cool. For home gardens needing only a small supply an early variety can be grown exclusively as it will keep in winter just the same as the winter or late varieties, and serves two purposes.

Productive Power

SOME of our little home gardens use enough seed to start a small farm. This is wrong! It is wasteful; and oftentimes causes crowding which leads to other troubles. We should know to some extent the productive power of our seeds. An ounce of hard leaved spinach seed won't go very far but an ounce of New Zealand spinach seed would be enough for a truck farm! If we set out 50 heads of cabbage and give them a little attention we are almost sure to gather 50 heads; if we set out 50 seeds of corn we should gather about 100 ears as the crop; a 50 foot row of spinach should give six cuttings for a family of six; a 50 foot row of peas should give 12 pickings for a family of six; whereas a half dozen egg plants would give a family of six, that was really fond of that vegetable, all the egg fruit they could possibly use. These are points to study in making our plan. It is a false economy to be meagre with seeds, but there is a happy medium between meanness and waste.

How Much Seed Needed?

CABBAGE, cauliflower, Brussels sprouts, and kale are usually sown in a seed bed and transplanted so there is little waste and one ounce of seed should produce 3,000 plants. Celery which is handled in the same manner should produce 5,000 plants from one ounce of seed.

Garden crops that are sown in rows and thinned out to the required distance are best seeded moderately thick to assure a good stand. One ounce of seed will sow 100 feet of drill of the following: carrots, chicory, onions, leek, radish, turnip, ruta бага. For beets and chard two ounces of seed are needed for 100 feet of drill; while parsnip, parsley and celeriac will only require one half ounce.

Peas, bush beans, bush limas, spinach and onion sets are not thinned; they are sown or planted in the rows in the proper quantities to allow for maturity of the plants; one quart of peas, one quart of onion sets, and one ounce of spinach for 100 feet of drill; whereas one pint of bush or lima beans will sow the same distance of row.

Garden crops sown in hills, should be well seeded to safeguard against any blanks. It is an easy matter to thin but hard to replace. One ounce of pumpkin or squash will sow 25 hills; one ounce of cucumber, muskmelon or watermelon will be sufficient for 50 hills, one pint of pole limas or other pole beans will sow 50 hills and one pint of corn will be enough for 100 hills.

Lettuce and endive are usually sown in the seed bed and then transplanted, one ounce of seed will produce 5,000 plants. Potatoes are planted at the rate of one peck of seed to 100 hills or about three barrels per acre [but next month THE GARDEN MAGAZINE will tell how to reduce this considerably by using skins or eyes].

Advance Planning

ANIMAL manure is almost indispensable for the vegetable garden and our present plans must consider the supply for the year. Stable manure improves with age, so get it now, and by "turning" several times it will be improved ten fold. A garden 50 x 50 should have at least two loads and three would be better, fertilizers will be required later in the season and should be ordered now.

THE PATRIOTIC GARDEN

FOOD F-O-B THE

He also Fights who

EAT • FRUIT • AND • SAVE • SUGAR

KITCHEN DOOR

helps a Fighter Fight
H-HOOVER

EAT • NUTS • AND • SAVE • FAT

Making the Smallest Quantity Reach the Farthest

GRACE TABOR

METHODS OF SCIENTIFIC INDUSTRIAL MANAGEMENT APPLIED TO THE VEGETABLE GARDEN

Mr. P. S. Ridsdale, Secretary of the National Emergency Food Garden Commission, writes: "Let me compliment you on your feature for food gardens. This kind of instruction is what so many people sorely need. Many made a great mistake this year (1917) in planting too many seeds in too small an area. It is essential that people be taught next year how much (or how little) it is possible to plant in certain prescribed areas."

[EDITOR'S NOTE.—An experimental garden was conducted all last year by Miss Tabor with the object of ascertaining just how modern scientific methods could be effectively introduced into the Patriotic Garden. She has worked out for us to a nicety the essential problems of efficiency in space, succession, and quantities of food crops for any definite number of persons without any excess going to waste; and succession charts, plans, and all data for working any sized garden are given in this article.]

IN EVERY household there is a demand that is quite as definite as the demand of world commerce, if we choose to make it so, or rather, if we choose to believe that it is so, and set about ascertaining what it may be. Commonly the gardener is prodigal of material—he plants too much of what he does plant; and he fails certainly to organize; that is, he fails to study his problem, and reduce it to its lowest factors.

Demand should regulate supply, invariably—in gardening. It, therefore, behooves the home gardener to determine to a nicety how much he needs to raise of each thing he proposes planting in order to supply his market. If he raises more than enough, it means that he buys just that much more seed than he need to, and works more land than he need work; therefore, putting in more time than he should. And he has to put in still more time harvesting the excess thus derived, unless he allows it to waste. Actually he simply increases his cost of production—his overhead—to no advantage whatsoever.

LABOR should yield certain returns. It should produce the maximum in effort; and neither effort nor result can be considered independently, because they are each the standard by which the other is judged. Careful observation has established the fact that only when labor is accomplished with ease and comfort by the laborer is it possible to maintain the highest standard in results over a lengthened period. This high standard, so greatly desired, is being obtained in many industrial plants by a careful study of all conditions and factors having to do with the work, and there has been given to this new science the name of "scientific industrial management."

When the war garden became the great and immediate necessity of last spring, I determined to make use of "scientific management" in planting and tending a garden in order to find out if it would not only increase our garden output when increased production was so vital, but also, at the same time show us an easier way to work. It did both!

ONE YEAR'S VEGETABLE RATIONS FOR FAMILY OF FOUR ADULTS, BY WHICH THE PLANTING OF THE EXPERIMENTAL GARDEN WAS PROPORTIONED

SUMMER—127 DAYS

VEGETABLE	NO. ROWS	SERVINGS
*Peas	7	14
Beets	2	10
Cabbage	15 heads	15
Corn	8	40
Turnips	1	5
Carrots	2	10
*Kohlrabi	1	4
*Eggplant	1	25
*Cauliflower	15 heads	15
Tomatoes	3	Indefinite
Okra	2	15
Sorrel	3	20
Beans	1	50
Lima beans	3	15
*Squash (crookneck)	4 hills	36
*Peppers	1	25
Total number of servings grown		299
Required total (no. of days)		127
Surplus of summer vegetables (to be canned or dried)		172

WINTER—238 DAYS

VEGETABLE	NO. ROWS	SERVINGS
Beets	2	10
Parsnips	3	15
Salsify	4	20
Carrots	2	10
Cabbage	9 heads	9
Rutabagas		18
Winter Squash	2 hills	10
Onions	4	40
Total number of servings grown		132
Required total (no. of days)		238
Deficit of winter vegetables		106
Hence there must be on hand for winter, in addition to the above winter vegetables, the following canned or dried, from summer's surplus:—		
Corn	25 cans	for 25 servings
String beans	25 "	" 25 "
Greens (beet tops, etc.)	12 "	" 12 "
Okra (dried)	250 pods	" 10 "
Tomatoes	24 cans	" 24 "
Lima beans (dried)	10 pints	" 10 "
Or a total of		106 servings

The summer's surplus shown above provides about half as much more, which allows a fair margin for extra service.

The space given over to potatoes allows 402 hills; at a fair yield a hill a day, or 365 hills in all, should be enough for a family of four. This allotment of ground therefore may be considered sufficient, when the proper conditions of soil have been secured.

Add $\frac{1}{2}$ of the above amounts for each additional member of a family.

*Not considered for canning (see text.)

LET us consider the backyard vegetable garden, for a moment—the most lamentably wasteful bit of earth on earth, as usually conducted. String beans by the bushel, when you can't give away quarts. Lettuce daily—cabbage-head size—when half a head furnishes enough for the family, and all the neighbors have their own. Green corn by the score ears—just at the time the beans are most abundant and the beets need thinning (and eating) and the okra is demanding to be cut.

This is the way it goes, until the gardener is quite out of his mind with the worry of it; and like as not sits down and gives up in despair, letting everything go to seed or to waste—which is usually one and the same. Very few had arrived at the stage of drying their own beans and corn and okra, up to last summer. And in addition to the surfeit there is usually the famine—the lack of certain worthy vegetables that have either been crowded out, or else have not been planted in sufficient abundance to meet the needs of the household.

SO IN the last analysis, it is not how much we raise but how much we use, that is important; and instead of being smart we are simply stupid when we overdo. It is nothing to boast of that we had "such a world of tomatoes!" if a world of tomatoes was more than we needed, more than we could use. Rather is it something to be ashamed of, for it reveals poor management. Prodigality again; prodigality everywhere!—our besetting sin. It is this assertion, taken as a warning, that sounded the key-note of the war garden that is the subject of this article.

The "clearly defined ideal" was "just enough, and no more!" Determining what would be just enough meant, of course, ascertaining what the year's market would be, first of all. In other words, what would the family which this garden was to be "tried out" on, eat during the year—finishing up with next to nothing left over when the garden products of next year begin to be available? So many bushels of potatoes, so many measures of beets, and of carrots and parsnips and so on, through the list, could be roughly guessed

at of course; but this seemed altogether too vague, too much the old hit-or-miss way. There must be something more definite than this, or it would not deserve to be called scientific management.

Obviously it must be brought down to the individual, in order to be exact enough to meet this test, and to form a basis of operations. How many potatoes will an individual eat, during the year? How many beets? And carrots? And parsnips?—and so on. Sounds almost absurd, at first, does it not? But actually it is simply a problem in rationing which, when solved, is to be coupled up to the gardening planning problem, and there you are!

So thus it was all planned, root crops and top crops, with pages of figures set down before quantities were finally determined.

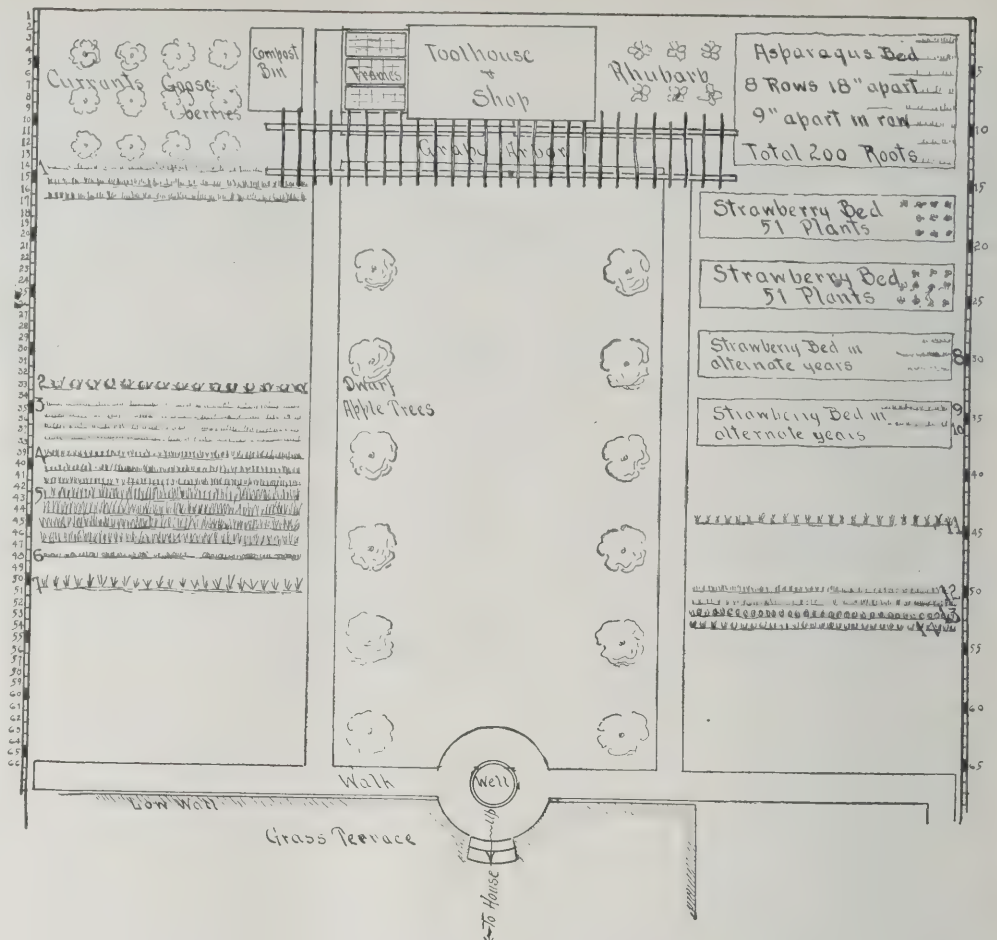
It is yet too soon to say, with certainty, whether the potatoes which the garden in question yielded will suffice for the family of four who make up the "trial squad;" probably they will not, quite. The yield was fair, though not as good as it might have been if the soil had not been over-enriched with stable manure, applied with mistaken zeal during the summer previous. Many of the plants ran largely to top, under the stimulus of it. A total of about 8 bushels of excellent quality, promises to carry until April first or thereabouts. This verifies the estimate of half a pound per person daily; otherwise, an average of two good sized potatoes.

THE analysis at length developed that a row of beets 24 feet long—the length of the side rows in this garden was 24 feet, from which we must make an allowance of perhaps 18 to 24 inches, for waste at the ends—would yield 48 roots, less this waste, which we may say reduces the number to 45. Similarly, carrots, turnips and parsnips would yield 45 roots per row; salsify, thinned to 4 inches apart in the row, half as many more, or about 65 roots; onions thinned to 2 inches apart, about 135 to the row; cabbages planted 18 inches apart—as early plants may be—just 15 heads, which is an ample number for summer, unless one is inordinately fond of cabbage.

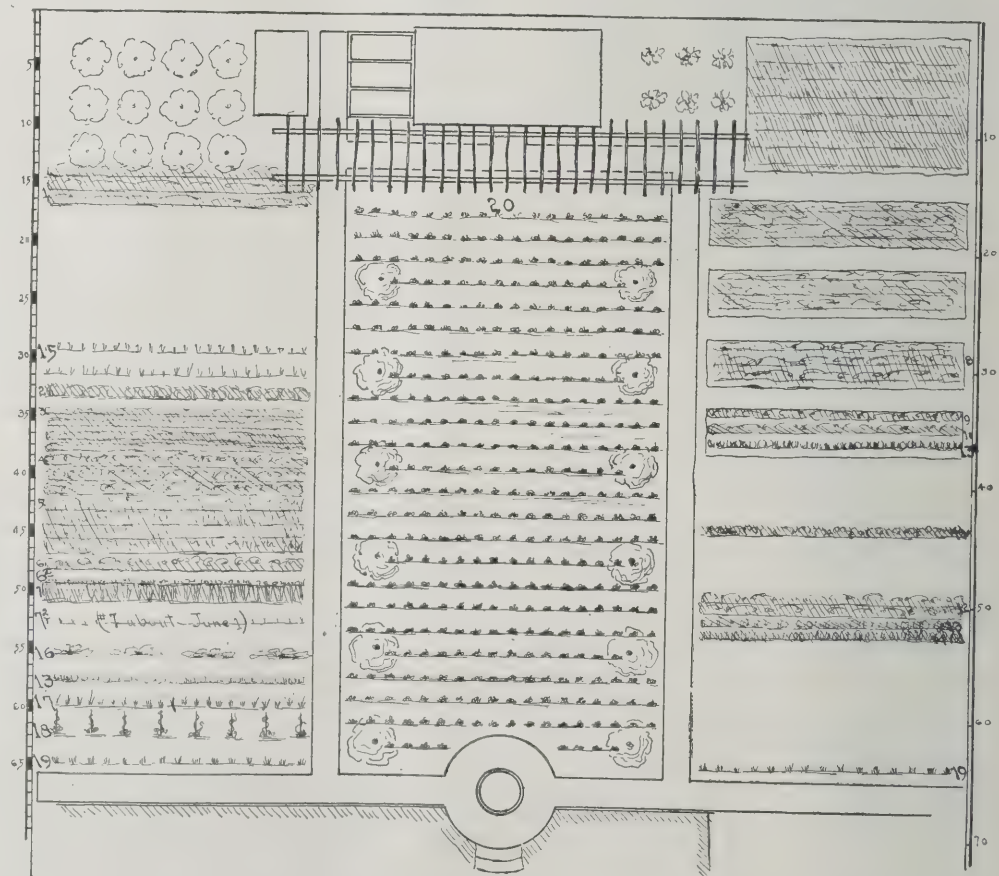
A bunch of beets in market is ordinarily four or five; hence, a single row gave 10 bunches; otherwise, five servings. Each row of the other root vegetables was apportioned in the same way, excepting the rutabagas and the salsify. Of the former, a pair are enough to serve at a meal; and of the latter, a bunch of perhaps ten or a dozen is needed.

It would take too much space to elaborate upon the figures by which the supply of each vegetable was determined; so the result in tabulated form alone is given. This, as will be seen, is based upon a division of the year into producing months and non-producing months. Of the former, there are approximately $4\frac{1}{2}$ —more accurately perhaps, there are 18 weeks during which each day's supply may be taken fresh from the garden. This leaves 34 weeks to be provided for, either with the surplus, canned, dried or in some way preserved, or with the strictly winter vegetables—the root crops, cabbage and winter squash.

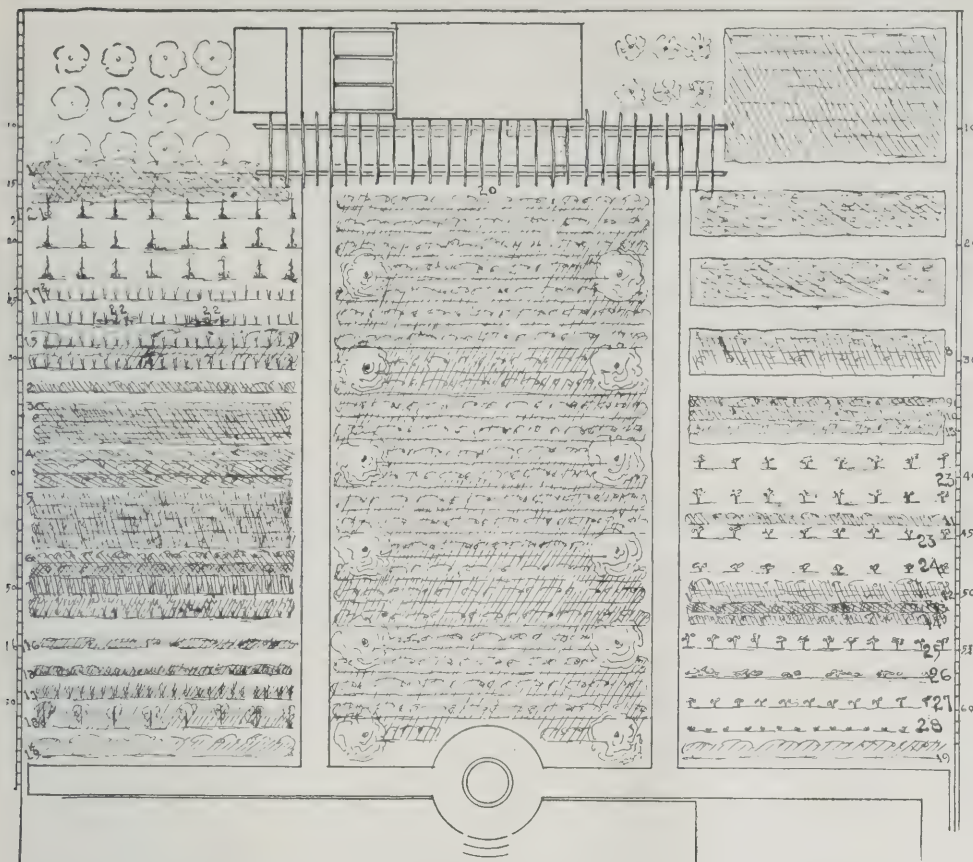
THE 34 weeks or 238 days of winter have eight strictly winter vegetables and six canned or preserved to be divided between them; that is, there must be enough of the fourteen to serve 17 times each, or



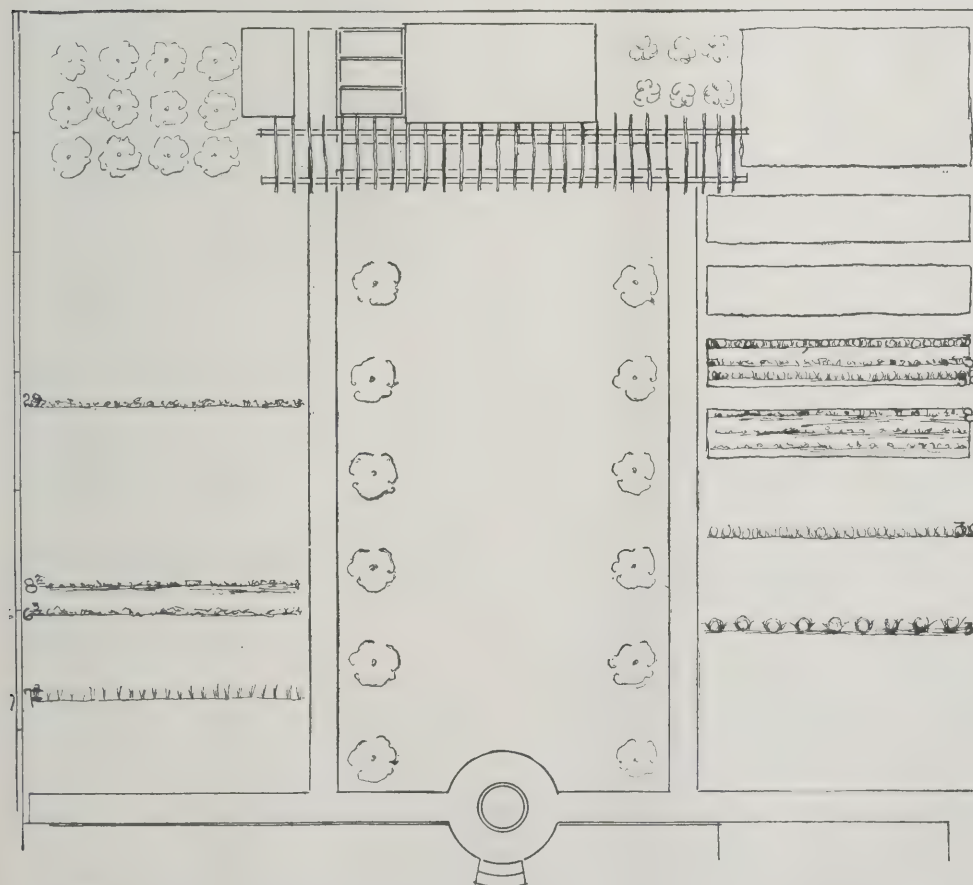
FIRST PLANTING, as made when the buds begin to swell (normally in March in the latitude of New York). Distances between rows 12, 15, 18, 24, 30, 36 or 48 inches



SECOND PLANTING, as made when the pome fruits—apple, pear, etc.—are in bloom. (Normally toward the end of May in New York)



THIRD PLANTING, as made in June. All rows now filled and no further planting until about July 1 when early cabbage No. 2; early peas No. 8; and early lettuce No. 3 will be mature and harvested



FURTHER SUCCESSIVE PLANTINGS; made from early July to middle of August as the earlier first planted crops mature

as much more of a favorite as may be wanted, with as much less of some other. Against this, eight times serving each of the fifteen available during the 126 days of fresh green stuff—this reckoning does not include salads, nor garnishes nor the side issues, such as radishes—will carry through the summer, roughly speaking.

Of these summer vegetables, six are regarded as purely of summer, that is, not susceptible of canning or preserving in sufficiently palatable form to be worth doing. These are indicated in the table by a (*); peas being thus excluded because only a sufficient number to supply the table in summer can be grown in the space.

Naturally, it is planned to serve these purely summer vegetables more often than the others which may be canned, thus balancing the situation. For example, string beans are both a summer and a winter vegetable; that is, they are successfully canned. Instead of making use of them the full number of times during the summer therefore, they give way to stuffed peppers or eggplant or squash, sufficiently often to make it possible to eat all of these latter that are produced.

All beans maturing at such time as one of these, are therefore canned, instead of any being served immediately on the table; and similarly with everything that "doubles up" with a vegetable that must be used immediately or not at all.

ON THIS basis, the canning and drying are looked to first, and only when the requisite amount is reached is the garden product freely consumed during the growing season. This does not mean any dearth of fresh, green vegetables however; for the list does not include salads; but the garden includes them the year around, with the help of its three frames. Also, it affords fresh kale during the very early spring—late winter, actually—and spinach also, and there are perennial onions, furnishing the "scalions" of early spring, tucked away in a corner.

Both tomatoes and peppers yield so enormously that no reckoning of them avails; suffice to say that after the ripe tomatoes are canned, there are still enough for table use, and to make chili sauce, and piccalilli (this uses the green peppers, too), and green ones to put away wrapped in paper. These ripen successively, so that fresh tomatoes from the garden were served frequently—and at Christmas dinner!

Field salad, spinach and Siberian kale were planted in late summer and autumn as the spaces were vacated, in patches rather than in rows, that is, in spaces about four feet across the left hand section of the garden. The parsnips and salsify, of course, stay all winter, being dug as wanted. Except where the strawberries, kale, field salad and spinach were placed the ground which had been cultivated through the summer was harrowed or roughened up by hand and sown to rye.

French endive is of course a winter vegetable also—or perhaps I should particularize by saying "salad"—which needs a word of direction, possibly. After being grown through the summer in the garden, the tops are cut away and roots are dug in the fall, and planted indoors, in a dark cellar that has a moderate temperature—the temperature of a cool greenhouse. Soon the blanched shoots will appear; and these are cut from time to time, taking care not to injure the crown of the plant. In this way they will grow throughout the season; and as there is nothing in the

world of salads comparable to this "witloof chicory," the little trouble of growing it is repaid a thousand-fold.

IN EXPLANATION of the strawberry beds, I may say that the original planting is as shown in the first chart. These are the plants that bore last summer, and will bear next year's crop also. The spaces given over to early peas, followed by lettuce and winter beets, and to early carrots, turnips and lettuce followed by a late planting of early peas, also radishes, drilled in in the small spaces, as desired, will be planted with runner plants taken from the old plants late

in October. These spaces will, therefore, become the strawberry beds of the summer of 1918, while the present beds will be destroyed that year; ordinarily they would be kept but two years.

THE asparagus bed is too recently planted to enter into consideration yet. When it comes into bearing, however, it will add materially to the winter as well as summer larder; for 200 roots will furnish on an average of 75 shoots daily, over a period of about two weeks. As a bunch of asparagus usually numbers from 30 to 40 shoots—sometimes not half this—it is obvious that the yield of

the bed will be abundant to meet the family requirements.

AS TO the layout of this garden, it may not be amiss to call attention to the fact that, in times of peace it lends itself perfectly to as little or as much vegetable gardening as its owner may wish to carry on. The central portion, backed by the arbor, lies directly opposite a long porch, upon which the principal rooms of the house open. Here are the potatoes; and here they will be as long as the war lasts. But it is intended that this portion shall ordinarily be lawn, with the dwarf apple trees lining it up on either side.

PLANTING KEY. The vegetables are numbered straight through in the order of their planting as shown on the four charts on previous pages; second and third sowings of a variety are indicated by small indices, as "7²", the second sowing of Golden Bantam corn, "6³", the third sowing of Detroit Dark Red Beets, etc.

First planting made when the buds begin to swell

1. FRENCH SORREL.....3 rows.....15 in. apart—2 in. apart in row
This is a perennial, and will come every year 1 ounce of seed
2. CABBAGE (early).....1 row.....18 in. to next vegetable row
All-head Early Plants 18 in. apart—1 pk. seed
3. ONIONS.....4 rows.....12 in. apart—2 in. apart in row
Southport Yellow Globe ½ ounce seed
4. PARSNIP.....39 rows.....15 in. apart—6 in. apart in row
Hollow Crown 1 packet seed
5. SALSIFY.....4 rows.....15 in. apart—3 in. apart in row
Sandwich Island Mammoth 1 oz. seed
6. BEETS (early).....1 row.....15 in. allowance—6 in. apart in row
Detroit Dark Red 1 oz. seed for total plantings
7. CORN (early).....1 row.....24 in. allowance—12 in. apart in row
Golden Bantam ½ pint for total plantings
8. PEAS.....3 rows.....15 in. apart—4 in. apart in row
Blue Bantam. This variety is better for sparse sowing—1 qt. seed
9. CARROTS (early).....1 row.....15 in. apart—6 in. apart in row
Rubicon Half Long 1 packet seed
10. TURNIP.....1 row.....15 in. allowance—6 in. apart in row
Purple-top White Globe 1 packet seed
11. KOHL RABI.....1 row.....18 in. allowance—12 in. apart in row
White Vienna 1 packet seed
12. CARROT (late).....1 row.....15 in. allowance—6 in. apart in row
St. Valery 1 packet seed
13. LETTUCE.....1 row.....15 in. allowance—8 in. apart in row
All Seasons 1 packet
14. FRENCH ENDIVIE.....1 row.....15 in. allowance—10 in. apart in row
Witloof Chicory 1 packet

Second planting, to be planted when the pome fruits are in bloom

15. CORN.....2 rows.....24 in. apart—12 in. apart in row
Country Gentleman ½ pint seed
- 6² BEETS.....1 row.....15 in. allowance—6 in. apart in row
- 7² CORN.....1 row.....24 in. allowance—12 in. apart in row
Golden Bantam Seed as above
16. SUMMER SQUASH.....4 hills.....4 ft. apart each way
Giant Crookneck 1 packet seed
17. CORN.....1 row.....24 in. allowance—12 in. apart in row
Black Mexican 1 packet
18. BEANS (pole).....1 row.....24 in. allowance—3 feet apart in row
Kentucky Wonder 1 packet
19. OKRA.....1 long row.....18 in. allowance—18 in. apart in row
Long Pod 1 packet

NOTE. The varieties named in this key are a record of those actually used last year in working up the data for this article. Individual preferences and other considerations will naturally lead to changes according to circumstances. (See "Your Seed Order" on page 197)

20. POTATOES.....24 rows.....24 in. apart—18 in. apart in row
Vermont Gold Coin 1 peck, to be cut to eyes for seed
- 13² LETTUCE.....1 row.....15 in. allowance—8 in. apart in row
All Seasons Seed as above

Third planting, to be planted after June first, when ground is thoroughly warm

21. LIMA BEANS.....3 rows.....4 ft. apart—4 ft. apart in row
Giant Podded 1 packet seed
- 17² CORN.....2 rows.....24 in. apart—12 in. apart in row
Black Mexican 1 packet
22. WINTER SQUASH.....2 hills.....8 ft. apart, in hills with No. 17
Hubbard 1 packet seed
23. TOMATOES.....3 rows.....4 ft. apart—3 ft. apart in row
Bonny Best 1 packet seed
24. TOMATO.....1 row.....3 ft. allowance—3 ft. apart in row
Cherry Currant—useful for salads and preserving 1 packet seed
25. EGGPLANT.....1 row.....24 in. allowance—2 ft. apart in row
Black Beauty 1 packet seed
26. CUCUMBER.....6 hills.....5 ft. allowance—40 inches apart in row
Long green 1 packet seed
27. PEPPERS.....2 ft. allowance—2 ft. apart in row
Sweet Upright 1 packet seed
28. CAULIFLOWER.....1 row.....2 ft. allowance—18 in. apart in row
Danish Dry Weather 1 packet

Succession planting, to be made about July first

29. RUTABAGAS.....1 row.....2 ft. allowance—8 in. apart in row
Imperial Hardy 1 packet seed
30. LETTUCE.....1 row.....15 in. allowance—6 in. apart in row
Eclipse Cos (Romaine) 1 packet seed
31. BEETS (winter).....1 row.....15 in. allowance—6 in. apart in row
Long Smooth 1 packet seed
32. CABBAGE (winter).....1 row.....2 ft. allowance—2 ft. apart in row
Danish Ballhead 1 packet seed

To be planted July 15. 6³ Beets—1 row; 7³ Corn—1 row; 30² Lettuce—1 row.

To be planted August 1. 8² Peas—4 rows; 30³ Lettuce—1 row.

Plants of cabbage, tomatoes, peppers, and eggplant should be started indoors in March, or February, and thus be ready for setting out at the dates indicated. It is usually necessary to raise one's own plants in order to secure the varieties, as few of these are grown by dealers. The dealer confines himself usually to the popular market kinds, while these are selected for special quality, for the home garden.

Planning for Fruit This Year and After M. G. KAINS

New York

[EDITOR'S NOTE: Years ago every home garden had at least a "few berry bushes." And it was a good old custom that led our grandfathers to plant apples the while our grandmothers made jam and preserves. Surely something of the real meaning of a garden has gone out of our lives in these recent days when we depend on the commercial orchardist in a far off state, whose first element of merit in a fruit is its "shipping" resistance—developed at the cost of intrinsic qualities like flavor, aroma, tenderness and juiciness. We can plant some fruits without in the least sacrificing the vegetables or flowers—and by the way, what's prettier than a fruit tree in blossom? Fresh fruits fill a need in our daily food requirements that nothing else supplies, and moreover, at this time it is patriotic to plant permanent food crops, nuts, berries, and such like, as well as cabbages and potatoes. The big problem before us this year is food production—distribution and conservation are being ably looked after; but production is unorganized and it is in that direction that the individual home gardener can make his influence felt in contributing to the nation's need. Make each home garden as nearly complete as possible. Plant fruits, fruits and more fruits.]

WHEN I see a garden without fruit I recall the face of a lady I once met. It wore a constant look of blank surprise. At first I couldn't make out what gave her that strange expression but after some surreptitious scouting I discovered that she had no eyebrows! A garden without fruit is equally blank. If you have newly moved to the country or the suburbs you may not have thought of putting fruit plants into your garden because

you have never learned what really good fruit is—that is home grown, fully ripened, and of "quality" varieties that don't get into the stores. Maybe you still have the allusion that fruit is "hard to grow," that there's a constant and losing fight against bugs and diseases or that too much space is required for the normal development of the plants—to say nothing of time—and that your little plot may be more profitably devoted to vegetables.

What the Small Space May Produce

SUPPOSE, we admit, that there isn't room for "tree" fruits. Still enough "small" fruits to supply the family may be grown in an ordinary suburban backyard and yet leave space for a goodly selection and quantity of vegetables. Since a currant or a gooseberry bush in full bearing and ordinarily well managed will yield from four to eight quarts, or even more, every year, it is easy to see that half a dozen of each should furnish



Why you should not prune a currant in spring. It has flower buds to the very tip

will yield an ample supply of fruit for three weeks or a month before the raspberries start. They start the season in the home garden just about the time the appetite is becoming cloyed with rhubarb; and they start a procession of fruits which, by choosing the right varieties, one may keep moving from June until January or even later, the berries continuing till October thus overlapping the grapes which start to ripen in early September. Thus a suburban lot can be made to meet the needs of the family appetite for fresh fruit for six or even eight months and also supply the home table with canned fruit, jams, jellies and preserves *without having any of its space allotted to tree fruits of any kind.*

Quick Returns from Judicious Plantings

THAT old rhyme "He who plants pears plants for his heirs" must have been written when people knew very little about home fruit growing and is largely responsible for the belief that one must wait for years before he can gather fruit from his plantation. While certain varieties and certain methods require a great deal of time, there are precocious varieties and short cuts that are

ample supplies for the ordinary sized family. Red and white currant varieties are much alike in flavor, but the black ones are as different as could be imagined. So here for a start are three distinct kinds of easily grown fruits that require but little space.

A dozen to a score of blackberry plants will give enough fruit for eating fresh, canned, or made into jam. If there is space for double the number of plants add the Iceberg, a so-called "white" variety that for home use is interesting and unusual. Raspberries are much more important, however, so a dozen or a score plants of the red kind will give a fair supply and an equal number of black ones will add both variety and difference of flavor. There are purple and yellow kinds also; but these mostly resemble the red ones in flavor. The purple ones are not as attractive looking as the reds, but are specially good for making jam and canned berries. The yellow ones are a novelty to many people because they are rarely seen in the stores.

Strawberries—50 to 100 plants each, of an early, a midseason, and a late variety—

specially to be commended to the owners of small areas. Many people who don't plant fruit trees at all would probably do so if they knew that they can positively gather a crop *within two or three years* of the time they set out the nursery stock and every year after. That's better returns than you can get from sowing seed of biennial herbaceous flowers! *Some fruit can even be gathered the same season!* Yes, plants of certain varieties (or which have been treated by the nurserymen in certain ways) may be set this spring with the assurance that they will start to bear in the summer—the summer of 1918.

UNGUARDED theory? Not at all! Look at some actual facts:

Last summer I gathered raspberries, currants and gooseberries in my Long Island backyard from plants which until four months previous had been growing in Western New York, and strawberries from plants which until three months before had been growing in southern Maryland! The soil (save the mark!) was anything but favorable, because the builders of the house had spread the subsoil from the cellar excavation all over the surface, and when I took possession of the place there was only a sparse and scrawny growth of weeds upon it. But that's another story.

"How did we do it?" *We didn't do it at all; we claim no credit.* In the case of the strawberries—Progressive and Superb—the fruit was due to the variety; in the cases of the bush fruits it was due to the nurseryman. The two strawberry varieties would have borne a few fruits in June had we allowed them to do so, but we wanted fruit later in the season so strengthened the plants by removing the blossom buds, as soon as they appeared, up to the middle of July. Thus we got strawberries from August until October, when frost spoiled the fruit. The raspberry, currant and gooseberry plants had been transplanted in the nursery so they had specially strong root systems and were thus ready to bear fruit the first season. To be sure, these plants cost about 50 per cent. more than one year

plants; but what family gardener would hesitate to pay even double for plants which will enable him to save a full year in getting fruit, especially when the superior, transplanted plants cost only 50 cents to \$1.00 a dozen? With proper care such plants will increase in productivity for the next two years reaching a steady and high annual yield and keeping it up for ten or fifteen years.

Early Bearing Tree Fruits

WHAT fruit trees will give earliest returns? Before answering that question it seems necessary to state the fundamental principle that, with two exceptions, fruit trees should not be older than two years when bought from the nurseryman.



Fruit trees trained as dwarfs to a trellis may be used in very formal schemes

One of these exceptions is the peach which should never be older than one-year when purchased. The other is that trees which have been specially prepared in the nursery by root pruning, etc., may be three or four years old; trees of these ages not so treated are sure to prove disappointing. In some cases they may bear a few fruits the same year as they are planted in the orchard but usually not until the next season. It is better for general planting, however, to rely upon two-year trees, better still to choose one year specimens if



Last year's berry cane will throw out lateral shoots which bear flowers and fruit. Remember this when tempted to trim up in spring. Only cut out canes that have fruited

immediate results are not an object, because in the long run these younger trees will be more satisfactory and productive. Older trees that have been grown in pots or tubs may of course be used.

Facts again? Certainly! Last season I planted several hundred one-year peach trees, some of which had blossoms last spring! No fruit followed, however. I did not expect it. The trees are now full of flower buds for the coming spring. I also planted several score of two- to four-year apple, cherry and plum trees. A few of the oldest sour cherry trees bore some fruit last summer; but the two-year trees have set nearly as many fruit buds for next season's crop and moreover are shaplier trees. This is equally true of the young plum and sweet cherry trees. Several of the hundred or more two-year apple trees will have flowers this spring; whether or not they will mature fruit remains to be seen. Two-year old quince bushes planted last spring blossomed but bore no fruit; they probably will have a fair show of quinces next fall.

Among trees not included above are a lot of dwarf and standard pears, two years old when planted. A few will bloom this spring. There are also a lot of one year apple, plum, and sweet cherry trees which bid fair to be the finest formed trees in the whole plantation because they were pruned back to have the main or frame limbs develop exactly where wanted. Herein lies one of the chief advantages of buying one year old trees. Of course, such trees usually require a year or two longer to come into bearing but they generally catch up to and overtake the older trees! In the orchard I have been discussing, partly set in the fall of 1916 and partly in the spring of 1917, we will see the beginning of fruit production in 1918. Isn't this quick enough for any one?

Some varieties are more precocious than others. The Rochester peach is the only one that bore blossoms last spring upon trees set the previous autumn—a year earlier than usual. Montmorency, English Morello, Early Richmond, and Marguerite cherries often begin

to bear the second season after two-year trees have been planted; Bartlett pears often when only one year older. Among the apples several are proverbial for precocity: Oldenburg and Yellow Transparent often start the year after being transplanted; indeed they have been known to bear a few fruits while still in the nursery row!

Where Space Economy is Imperative

DWARF trees are specially desirable for small places. The suburban garden which would be crowded if two or three standard apple trees were planted on it can easily accommodate *thirty to fifty dwarf trees* of apple, pear, peach, plum, apricot, nectarine, sweet and sour cherry. A still greater advantage is that dwarf trees begin to bear while still very young—in a year, or not more than two or three after planting, whereas the same varieties grown as standard trees might require two or three times as long.

** This article is the beginning of a series dealing with the home fruit garden in the old fashioned way.

Solving the Fuel Problem

NECESSITY FOR CONSERVING THE FUEL SUPPLY—VARIOUS WAYS OF SAVING COAL

THE Fuel Administration directs attention to the fact that under the present condition of fuel shortage, it becomes necessary for every operator of a greenhouse to carefully consider his fuel problem. The shortage is such that at least 10 per cent. and possibly 20 per cent., of fuel must be saved for the necessities of war. While every effort is being made to increase production, it has become perfectly evident that this alone will not suffice. There must be a careful consideration of the uses to which coal is being put and an equally careful consideration of the efficient use of coal in essential industries.

Greenhouse heating presents special problems of its own. One of the largest items in the efficient use of fuel is the character and degree of attention that is given to the fire. In residence heating practice, a satisfactory plant is designed to maintain service through a period of eight hours without attention. In manufacturing and public service steam plants, good hand firing implies firings every three to five minutes apart. In house-heating practice, about 50 per cent. of the heat of the coal is usefully employed, while in good steam boiler practice, 70 per cent. is readily attained. This very considerable difference is to a great extent due to the degree of attention which is bestowed upon the fire. Greenhouse practice occupies an intermediate place between these two extremes; the smaller greenhouses treating the firing of the boiler as an incidental chore and obtaining rather indifferent results, while the larger houses may approximate closely to the practice of commercial steam plants.

THE first consideration should be as to what degree of attention can, under the circumstances, be afforded to the furnaces of the heating plant. Increased attention means coal economy. The furnace should be in good order; the grates in such condition that good coal does not fall through broken places; and shaking grates should be used with caution. If more than 30 per cent. of the weight of the refuse is unburned coal, there

is something the matter with the grates or the practice in handling the fire. If the boiler is brick set, the bridgewall should be in good condition, the space behind the bridgewall cleaned out so as to give as large a volume in which gases can mix as possible, and the heating surfaces of the boiler should be cleaned often and thoroughly.

One of the most prolific sources of loss is by leakage of air into the boiler setting. This lowers the temperature of the gases, reduces the draft, and carries off a large amount of heat up the chimney. Leaks are found in ill-fitting firing doors, cracks in the boiler setting, bad fitting between the boiler and the brickwork; and all of these can be found by taking a lighted candle and holding it near to a suspected leak. If the candle flame is drawn toward the setting it is evidence of a leak that should be fixed. It is not at all difficult to increase the efficiency of the use of coal in some plants 10 or 15 per cent. by careful attention to this single detail.

THE process of burning appears to be such a simple one, with which we have so long been familiar, that too little attention is apt to be paid to the requirements of its efficient conduct. In competitions between expert firemen differences of 10 per cent. in economy are quite possible, due entirely to the degree of skill. It is easy to imagine that comparison between skilled and unskilled operation would show differences of 20 to 30 per cent.

Good firing is an art that can be acquired only by well directed practice. First, there must be correct notions about the process of combustion and the function of the fuel, the air, the grates, the combustion space, the draft, the dampers, and all the elements that enter into the problem. This information can be had from books. The United States Bureau of Mines issues directions for hand-firing which should be in the hands of every fireman. Technical Paper 80, "Hand-firing soft coal under power plant boilers," is most helpful for this purpose. With the proper ideals the acquirement of skill to put these

ideals into practice is a matter of time and willing attention. It is rarely, however, that the best way is the easy way. Firemen do not like to give frequent attention to a fire. It is so much easier to overload the furnace at long intervals. The firemen do not like to clean flues and keep the heating surfaces clean; as a matter of fact it is easier to shovel coal into the furnace than it is to attend to a dirty and disagreeable job of flue cleaning. Under the present condition, however, the man who faithfully performs these disagreeable duties and saves some fuel is performing "his bit" quite as truly as the worker in the munition factory.

THE owner of a plant must consider carefully the several fuels available. One must consider not only the fuel best adapted to the furnace or to the desires of the operator, but must consider whether such fuels ought to be used under the present difficulties of transportation and supply. In general, that fuel should be used which either escapes railroad transportation or, at least, has the shortest haul, since transportation problems are a main factor in the present fuel shortage. Waste wood and fallen timber should be utilized.

THE suggestion is frequently made that oil be substituted; but investigation usually discloses the fact that oil at the present time should be put to much better uses than for fuel, that the supply of fuel oil is also limited, and that it should be used as near the source of supply as possible.

FOR very small plants electric heating has been suggested, but, there again, it must be borne in mind that the electric current at best represents only a very small per cent. of the coal burned in the central station to produce it. In very large central station plants the current at the switchboard represents about 10 per cent. of the heat energy in the coal. It is therefore rarely that electric heating can compete in any way with the direct use of coal. Its use must be confined to cases where convenience is predominant and where loss of heat by radiation can be carefully restricted.

Your Seed Order and the Tangle of Varieties

GETTING THE BEST OUT OF THE CATALOGUES—AN EVER PRESENT PROBLEM CONSIDERED IN A PRACTICAL AND REASONABLE MANNER

THE gardener, particularly the beginner, will find a practical selection of varieties a serious problem. Besides, there is that other big problem, which confronts the man who is trying to make out a list of vegetable seeds for his garden, and that is the enormous duplication of varieties. Yet, who is to be the judge as to whether or not a variety is new or not? To put out an old variety under a new name often benefits the seedsman who does it. But in the end, it proves poor business for the gardening public as well as the seed trade in general. Some form of standardization of varieties we should have, and will have eventually, and it will be a tremendous help to the whole garden movement.

IN THE meantime what is the individual planter going to do about making an intelligent selection of varieties? Out of the scores of names of tomatoes, or lettuce, or sweet corn, which he will find in a half dozen catalogues, how shall he tell what to choose? Here is one way to go about it: Try to think of vegetables as being of certain *types*, rather than representing a lot of *varieties*. When that point is reached you will have the key to the correct analysis of the whole situation. Then, when reading descriptions, study the *essential facts* in connection with any vegetable of new or old type that interests you. After reading a few, you will soon be able to separate the chaff from the wheat, to make up your mind which statements are made for effect and which are dictated by the real reason why such and such a type deserves your consideration.

Now, just what is meant by "types of vegetables"? The term "type," as used here, stands for a classification of vegetables according to their form and pronounced difference in growth or appearance. Thus, all "root crops," like carrots, beets, radishes, etc., should be looked upon as being divided into three distinct types: the round, the half long, and the long. Nearly all vegetables of which we eat the green leaves, like cabbage, lettuce, etc., are of several distinct types, according to their form and habit of growth. Some cabbages have pointed heads, others round

heads, still others flat heads. As a rule, all vegetables of the same type are generally endowed with the same quality. Therefore, *first picking out the types* that will best serve your needs, will greatly simplify the choice of varieties, which term stands for the individual members of one type.



Where economy of space is important the bush bean is the indicated type. It bears its crop compactly

IN SOME instances, even the selection of the proper type for one's needs is not an easy matter. Take peas, for instance, among which we must recognize six types: the dwarf and the tall growing, the smooth-seeded and the wrinkled-seeded, the early maturing and the late. Which do you want? That is the one question each gardener must answer for himself in connection with every kind of vegetable. To help him answer it correctly, so that the resulting garden will prove a source of greatest satisfaction, is the purpose of the following paragraphs.

Beans.—There are two broad divisions, namely, the dwarf or bush type and the tall or pole type. There are three sub-types of bush beans—the green-podded, the wax-podded, and the large-seeded used as shell beans only. Among the green-podded and wax-podded we find a variation in the type of pods, some being flat, others round. The round-podded beans are more brittle, fleshier and contain more water, hence wilt easily. The flat-podded sorts are generally more prolific, contain more fibre, but look better on the market table. Since all modern beans are stringless, there is no excuse for growing "stringy beans" in any home garden. Bountiful (flat) and Stringless Greenpod (round), Rust Proof Golden Wax (flat) and Round Podded Kidney Wax, are dependable varieties of their types.

Among the shell beans, Dwarf Horticultural, Red Kidney and White Marrowfat are the most productive. Then there are the bush limas of which Burpee's Bush

Lima is the most popular, white Fordhook Bush Lima is of choicest quality.

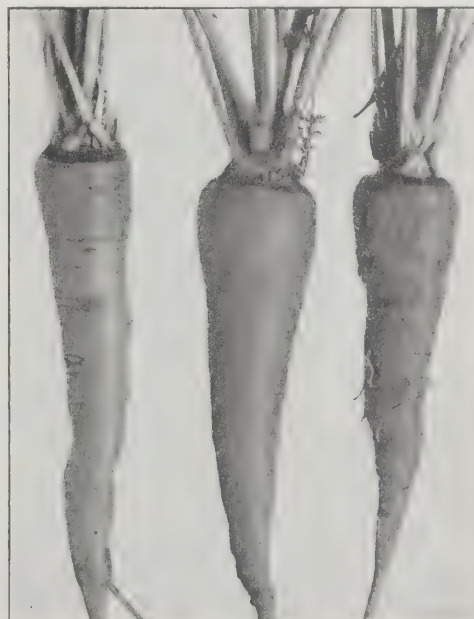
There are four broad types of pole beans: the green-podded (McCaslan, Kentucky Wonder); the wax-podded (Golden Cluster); the large seeded (Horticultural); and the limas. Of the latter, use Early Leviathan for planting in northern climates, and King of the Garden for biggest yields, where long seasons reign.

Beets.—Flat turnip-shaped, round, half long, and long types divide beets into early, midseason, and late varieties. The best known flat turnip-shaped beet is Crosby's Egyptian. The choicest round beet is Detroit Dark Red, which is also quite early. Model Red Globe is of the round, midseason type. The usefulness of the half long type is quite limited, while the long type (Long Smooth Blood) is by far the best for winter storage. However, the growing of long beets should not be attempted in heavy clay or on stony ground, since that will cause poor size and shape of the product.

Cabbage.—For home garden purposes, three types of cabbage deserve consideration, namely, the early pointed headed, the round cabbages, and the Savoy. The early pointed-head type, Early Jersey Wakefield or Charlestown Wakefield, are the standards for all sections. Of the early round-headed sorts, Copenhagen Market is by far the most productive. For summer use, consider the flat, medium-sized type, slow to break to seed, as represented by All-Season and Succession. For storing for winter, choose between the flat-headed (Flat Dutch, Surehead) and the round-headed (Danish Ball-Head) types. While the latter, where it develops perfectly, makes the harder head of the two, the flat type is adapted to a greater range of soil and climate. Try out both, unless you know from experience which is the better for your particular section. The Savoy type, with dark green, crinkled leaves, is of particularly fine flavor, and every home garden should pro-



Short type of carrot, early maturing and adapted to shallower soils



Long type of carrot which takes a longer time to grow and needs a deep soil

duce at least a few heads, for fall and early winter.

Carrots.—Again size and shape determine season of maturity and value of crop for different purposes. French Forcing and Gold Ball are of the small round type, but very early. Oxheart is the largest of the short blunt type. Chantenay is the most popular half long, while Danvers is the heaviest cropper of the half long type. Improved Long Orange is the longest, but also latest, and by far the best keeping winter type.

Cauliflower.—In the average home garden, one variety of cauliflower will be sufficient. For general purposes, the best for early and late, is the short stemmed early type (Early Snowball, Best Early). For a longer season, Dry Weather planted at the same time will come along after the varieties mentioned.

Celery.—Though there are a number of quite distinct types of celery two of these will cover the needs of the average garden. For early, use one of the standard so-called "self blanching" types (Golden Self Blanching, White Plume). To follow this for late fall and winter, either the dwarf growing winter sorts, such as Easy Blanching or Columbia, or Giant Pascal, of the late tall type, will prove useful.

Cucumbers.—Any improved variety of the White Spine type, such as Klondike, Davis Perfect, from one planting made in May and another in June should give plenty of "cukes," large and small, until frost. If a special quantity of small pickles is wanted, one of the small fruiting varieties, like Boston Pickling or Everbearing may be used in addition to the above.

Lettuce.—All catalogues recognize three distinct types, namely, the loose-leaf sorts, that do not form heads, the head lettuce and the Cos varieties. The gardener who never grew lettuce before, should pin his faith to the loose-leaf sorts because they are less exacting in their cultural requirements than the head lettuces. Both Black Seeded Simpson and Prizehead form large bunches of attractively curled leaves, where each plant is given a foot of space in the row, to permit of proper development.

However, for real quality in lettuce we have to look to the heading type of lettuce, in which we find, as two divisions, the Butterhead and the Crisphead. The former is the most widely grown, the latter the more reliable to grow during the summer months. Among the Butterhead type, May King is, perhaps, the best known early, California Cream Butter the choice as a second early, and All Seasons the most heat resisting.

"Crispheads" are so-called because of the extreme brittleness of the leaves which have very prominent midribs. These curve so strongly to the centre that frequently the head will rot or burst open on the side before allowing the seed stalk to appear. This type is the most valuable for mid-summer, and Iceberg is the best known sort for all sections.

Though inclined to become bitter and tough during the summer months, the value of the Cos type as a means of securing a constant supply of lettuce is just beginning to be appreciated. Express or Eclipse Cos is a small but very early variety, while Paris White Cos is a later but very much larger sort.

Melons.—Don't make the mistake of trying a dozen varieties, especially if you are just beginning. One each of the green-fleshed and the salmon-fleshed types, which will ripen fairly early, should be enough for a start. Rocky Ford—green-fleshed; and Emerald Gem, or Hoodoo—salmon-fleshed, are two reliable sorts. A new type of melon is Henderson's Bush which can be planted as close as three feet apart each way, making the cultivation of this crop possible where otherwise it could not be thought of, for lack of space.

Corn.—The yellow type of sweet corn, has increased so greatly in popularity during the last few years that it bids fair to push the white type into second place for home garden use. Of the early yellow corns, Golden Bantam is the original and still by far the most popular. Second early and main crop yellow corns are Sweet Orange, Golden Cream, Goldenrod, and Golden Giant. Of the white type, White Cob Cory, Metropolitan, Early Minnesota, are reliable first earlies. The second early are Howling Mob, Aristocrat, Cosmopolitan. In the late type of white corn, two sub-divisions are recognized in sorts with straight rows and others with kernels arranged in very irregular fashion. The most popular of the last type is Country Gentleman, while the straight rowed type is represented by the "Evergreens," of which Stowell's is the main stand-by in all sections.

Onions.—Three types serve all purposes in the average home garden. A mild, extra early is White Queen. White Portugal is later, but also a better keeper and grows larger. The Yellow Danvers type is perhaps the best all-round. The red type, of which Southport Red Globe and Red Wethersfield are the best known, is the latest to ripen, and the product keeps particularly well. In addition to the seeds sown, for earliest results, "sets" of white, yellow or red onions may be set out as soon as some of the ground may be worked in the spring.

Peas.—The first thing to decide about your peas is whether you are going to brush them or not. The dwarf sorts are the easier to grow and require less room, but do not yield as heavily nor for as long a season as the tall sorts. With the increased difficulty of getting brush or wire, the dwarf sorts are gaining in popularity. The smooth-seeded type of which Extra Early and Alaska are the best known, is the hardiest. But plant only enough of these for the first pickings, as the wrinkled peas, though they cannot be planted quite so early, will mature almost as quickly and will be found superior of flavor, besides being easier to shell. The dwarf early wrinkled type (Little Marvel, Thomas Laxton and Sutton's Excelsior), may be followed by the medium or late dwarf (Dwarf Champion, Carter's Daisy, British Wonder). Or these early wrinkled may be followed by the second early and late tall growing type, of which such sorts as Alderman, Telephone or Univalled give general satisfaction. Order enough seeds to be able to plant again in August, using an early variety for a fall crop.

Peppers.—Two types, an extra early (Neapolitan, Sweet Upright), and a medium main crop (Ruby King and Ruby Giant), will serve all requirements. The large, very late peppers (Chinese Giant) require a very long season to mature a good percentage of the fruits.

Radish.—There are three general types

which may be classed as spring, summer and winter. For spring use the small, round, rapid growing sorts, like Scarlet Globe or Rapid Red, are the most widely grown. Crimson Giant Globe, is a larger growing sort of this type. Among the long type of early radishes, Long Scarlet Short Top and Icicle lead all others in general usefulness. Icicle especially is stamped by popular approval to be the best all-round, general purpose white long radish for the home garden everywhere.

The summer type of radish grows much larger, but requires also a longer growing period to reach good size. Chartier or Shepherd may be considered the connecting link between the early long red sorts and the summer sorts. Of these, White Stuttgart is a popular, large, top-shaped sort of dependable qualities.

Among winter radishes, the European and Asiatic types compete for popular favor. Round, Half Long and Long Black Spanish have by far the finest flesh and keep all winter. White Chinese and China Rose grow very much larger, have more brittle flesh, are milder but do not keep so well. The winter type of radish should not be sown until July, for winter use.

Spinach.—Either Long Season or Victoria mature quickly and go to seed quickly during warm weather. New Zealand "spinach" is an entirely different plant, but furnishes "greens" similar to spinach throughout the season. Chard is really a type of beet, but deserves attention as the most continuously yielding of any "greens." The midribs of the leaves may be cooked like asparagus and are delicious. The savoy-leaved variety Lucullus is the best.

Squash.—The bush summer type (Scalloped Bush and Summer Crookneck), matures very early. Then there is the small, medium early, short-vined type with fruits good for either summer or winter use. Good sorts are Fordhook, Delicata. The best known of the large vined, late maturing, winter squashes are Hubbard, Delicious and Boston Marrow. The "vegetable marrow" type is distinct from any of the foregoing, and is not nearly so well known in this country as it should be.

Tomatoes.—Two distinct types of these deserve consideration: The dwarf, forming compact bushes, about three feet tall, and the tall or standard tomatoes, branching freely and recognizing no limit in growing tall where given a chance to climb and being tied to supports. The dwarf type is particularly useful for small gardens, since it will yield fair crops, planted as close as two feet apart each way. However, the average size of the fruit of such popular standards as Dwarf Champion (purple) and Dwarf Stone (scarlet), cannot compare with average fruits of standard or tall sorts. The exception to this is Dwarf Giant which may almost be considered a Dwarf Ponderosa. It bears fruits of really remarkable size in immense quantities.

The color of fruit divides the tall or standard tomatoes into two classes. Among the bright red sorts, Sparks' Earliana, Chalk's Early Jewel and Stone outclass all others in popularity. They mature in the order named. Among the purple fruited kinds, we find June Pink, Globe, Trucker's Favorite and Ponderosa to occupy the same relative positions. The purple-fruited types are of milder flavor than the bright red ones. Then, there is the yellow type of tomato



The ordinary type of tomato needs space and trained on a trellis will grow to almost any height. It bears profusely

(Golden Queen) good only for salad purposes and of so mild a flavor that it is almost tasteless.

For preserving, there is a number of small fruited sorts of various shapes and sizes, from the small Currant to the large Rose Peach. A few plants of these generally provide an abundance of fruit for the purpose.

Turnips.—Look at turnips very much as you would at radishes. The same general division as to types holds good. The small, early, Milan Turnips are good only during spring. For summer use, grow the firmer fleshed Purple Top, White Globe or Strap-Leaved. For fall, White Egg, Amber Globe or Golden Ball do well. For winter use, depend on the best keeping Swedish turnips or rutabagas. Besides being of different types, as far as shape is concerned, turnips and rutabagas may be divided into white-fleshed and yellow-fleshed kinds. There is

very little difference in the quality of the flesh, but the yellow-fleshed kinds provide dishes of a richer appearance.

When in Doubt What or How to Order

HERE is a list of pedigreed varieties in the different types that have proven dependable in many soils and sections. The quantities of seeds suggested cover the needs of a home garden 40 x 60 ft. which provides food for a family of six from early June until well into the winter, when stored beets, carrots, etc., put variety into the menu.

Beans.—(Green pod) one pint each Bountiful and Stringless Green Pod for extra early; Refugee Stringless, for midsummer and early fall. (Wax) one pint each New Kidney Wax, Hardy Wax and Sure Crop Wax. Early, midseason, and late. One pint of Fordhook Bush Limas.

Beets.—One ounce each Crosby's Egyptian and Eclipse for extra early, Detroit Dark Red and Edmands Blood for main crop, Model Red Globe and Long Smooth Blood for winter storage.

Cabbage.—One package each Early Jersey Wakefield, Copenhagen Market, Succession, All Seasons and Premium Flat Dutch. These mature in perfect succession in the order named and each packet will provide several hundred plants.

Corn, Sweet.—Half pint Early Peep O'Day or Malakoff. One pint Golden Bantam. Half pint Country Gentleman for late crop.

Lettuce.—One packet each Black Seeded Simpson for first early, California Cream Butter for succession. Paris White Cos for mid-summer. Half ounce each Naumburger or Tenderheart, All Seasons, Iceberg and Crisp As Ice for successive sowings and a constant supply.

Onions.—One packet each, White Portugal, Southport White Globe, Yellow Globe Danvers, Red Wethersfield; and Prizetaker for extra large, mild onions.

Peas.—One pint each, Prolific Extra Early (smooth-seeded); for crop succession Little Marvel, Sutton's Excelsior, Thomas Laxton and Improved Stratagem. These are all dwarfs, maturing in succession. To fill the "gap" between Thomas Laxton and Improved Stratagem, use Alderman, with a 5-foot vine or make repeated plantings of Little Marvel.

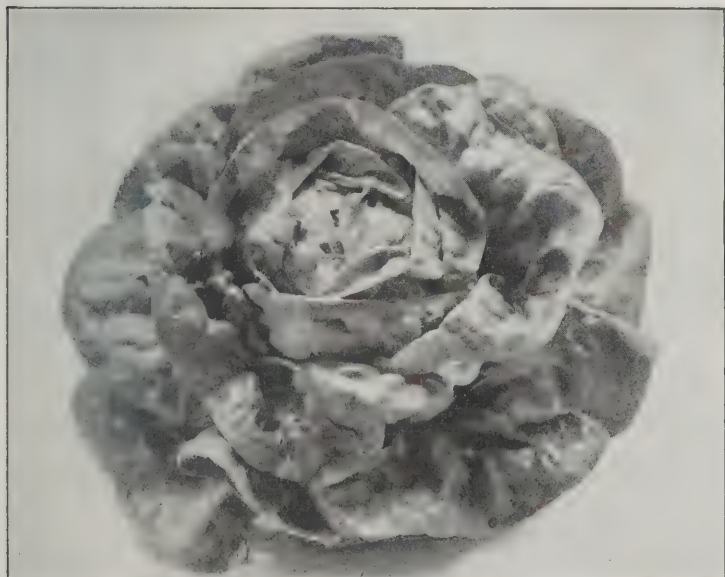


For small gardens the dwarf type of tomato is economical, since it may be planted 2 x 2 ft. Yields fairly well

Radishes.—Half ounce each Scarlet Globe, French Breakfast and Cincinnati Market for extra early and succession. One ounce each White Icicle and Charters for midseason and repeated sowings. Half ounce each Round Black Spanish and White Chinese for early and late winter use.

Tomatoes.—One packet each Sparks' Earliana, Chalk's Early Jewel, Livingston's Globe, and Stone.

NOTE:—The packets of seeds of both, cabbage and tomato, contain sufficient seeds to provide several hundred plants. Make a coöperative agreement with some garden neighbors whereby they will provide some plants while you provide others. Nothing is more commendable than the "get together" spirit in gardening and moreover we cannot afford, this year, to waste good garden seeds.



Head or cabbage lettuce which is the only type that "heads." Some people do not realize that all lettuces are not of this type



Crispleaf type of lettuce which has strongly developed ribs, and is, broadly speaking, the type that will do best in hot weather

Make Your War Garden Attractive

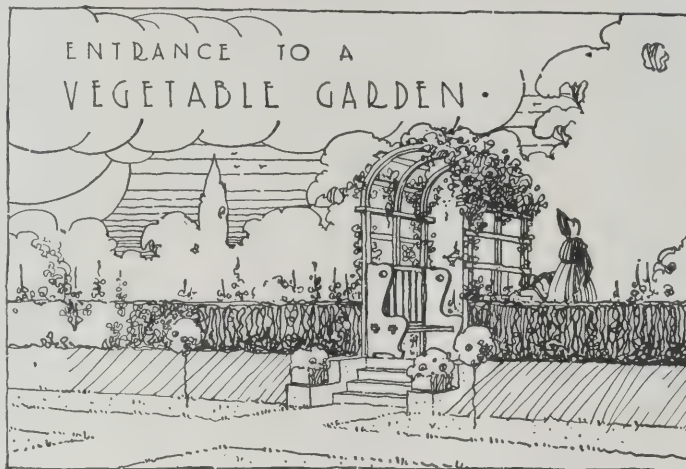
LEONIDAS WILLING RAMSEY
Landscape Architect, Iowa

THE VEGETABLE PLOT HAS COME TO STAY—WHY NOT MAKE IT A REAL PART OF THE GARDEN PICTURE

DURING the last spring and summer every available space was turned into a vegetable garden in order to battle the higher cost of living caused by the war, with the result that the increase in production is estimated to be as high as 250 per cent. It is hardly possible that the cost of living will ever be as low as it has been in the past, which makes it advisable that we consider the vegetable garden a permanent part of our home grounds. But at the same time we should realize that because we have a vegetable garden there is no reason that we should allow the rear yard to be arranged in an unsightly manner; for, with a little care, the place may present as attractive an appearance as was the case before the vegetable garden was added. We too often associate the vegetable garden with the tin can alley and the garbage dump and we fail to realize that it may easily be made an integral part of the home grounds from which we can receive that satisfaction which comes when a utilitarian problem is handled efficiently and attractively.

Many of us had never owned a vegetable garden before this last season and had rather considered work in the garden as a very uninteresting form of labor. We were surprised to find the pleasure which may be derived from working in the garden and in seeing plants develop from the time of their germination. Then, too we have found that vegetables raised by our own hands seem to taste better than those purchased at the market and that the advantage of having fresh parsley and the like for garnishing purposes is a matter of no little consideration.

GARDENING has been found as fascinating as other forms of exercise and as a matter of material for conversation has taken its place along with golf, base-ball, war, politics, weather and religion. Of course, there have been disappointments, but when



next season comes around we will have the experience of one season's work and will know a little better how to tackle the problems which beset us at the outset. Probably the greatest mistake made was in having the garden larger than could properly be cared for. A small vegetable garden worked properly will yield more than a larger garden worked carelessly.

In parts of Europe where every available space is made to produce its share, there are more attractive small homes and more unity of design than in our own country. Should we not plan our own gardens to be as attractive as possible, for then we would enjoy the work in them all the more, and be more apt thus to make a continued success of them? Some time ago the writer visited a little garden which was owned and tilled by a man who spent his days in hard labor; and yet, his garden was arranged so attractively, that one could not help but realize that in it he found peace and contentment. Why should we not have attractive little nooks and shelter houses in the garden as well as in any other part of the place, for surely we spend more time there than any other part of the home grounds?

Planning the Vegetable Garden

THE vegetable garden should be arranged along formal lines rather than otherwise; for the fact that rows running north and south are best for plant growth and that a geometrical arrangement is best from a standpoint of efficiency, confine our efforts to an arrangement far removed from the least bit of informality.

The walks are the backbone of the ground plan, and if carefully handled an interesting design may be developed. Care should be exercised, however, that the design be as simple as possible, for a design of a very intricate nature should be employed only when there is an abundance of help to care for the garden.

Probably the cheapest and the best path to be used in the vegetable garden is the natural grass, with edgings which would add crispness to the design. Although concrete walks are often used they are a bit chilly in appearance even for the vegetable garden. They have the advantage, however, that they are easily cleaned and are used properly when the walks connecting directly with the vegetable garden are of concrete. Macadam and gravel walks have a pleasing natural tone

but they become sticky when dampened and the garden cannot be watered as freely as otherwise.

Brick walks are perhaps even better than the natural grass if one is willing to go to the additional expense, for the effect gained would warrant the expenditure. They are easily cleaned and a brick may be selected which has a warmth of color that cannot be secured through any other medium.

THERE should be some dominant note in the garden which may be secured by the use of architectural features or the interpolation of flowers in the dominating parterre. Bird baths, seats and sundials may be used as accents in the garden as well as any other part

of the grounds. Sundials have a charm which is indispensable and no large place is complete without one. There is a sentimental attachment which makes the sundial a welcome part of any garden, and the legend which they carry may turn a morning of work into one of pleasant thoughts. Bird baths are being used more and more and no more suitable location could be found than in the vegetable garden—there the birds which busy themselves in destroying the insects in the garden may come to drink and their presence will afford much company during the working hours. Seats should be located here and there in the garden in order that it may prove inviting and livable.

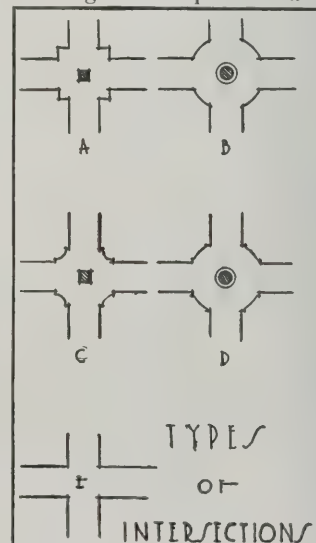
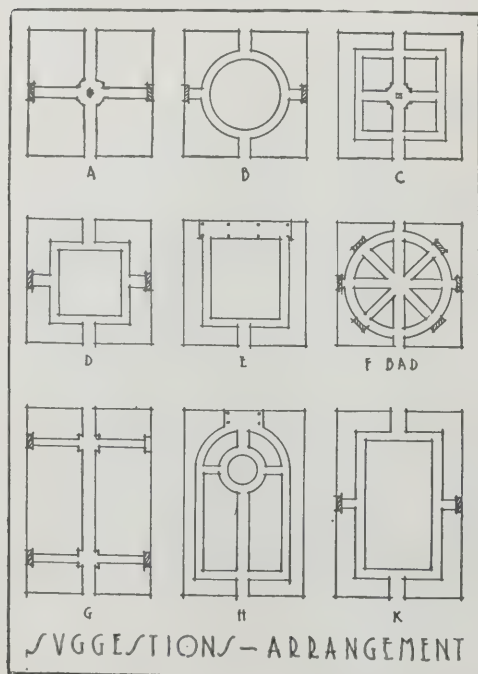
As cut flowers should be raised under vegetable garden conditions, there is no place more appropriate than along the paths in the vegetable garden and around the architectural features which are placed therein.

Location for the Vegetable Garden

ALTHOUGH the prime consideration in locating the vegetable garden is that a site be selected where there is an ample amount of sun and where the soil is suitable for a garden, there are many other points to be given consideration commensurate with their importance. The garden should be located as an integral part of the whole scheme of the home grounds and should be planned in connection with the garage and other service buildings if the place is a large one. Any

difference in grade may often be taken advantage of in locating the vegetable garden. The garden should be handy to the kitchen and yet not too close to the house.

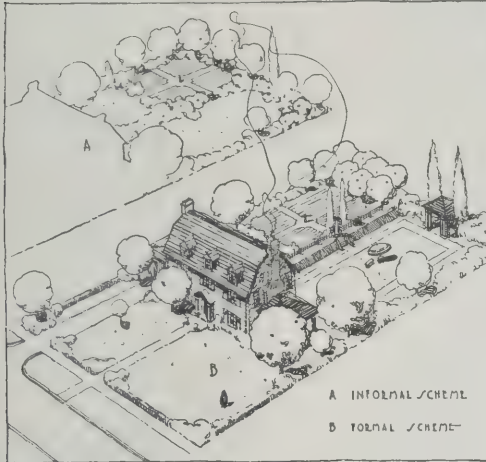
It is needless to say that the garden should be screened from the view of the public and even the neighbors, when such an arrangement is possible, whether the



screen be a planting, fence, or a building. Lattice fences and other architectural features are often used for a two-fold purpose, acting as a background to one area and as a screen to the garden.

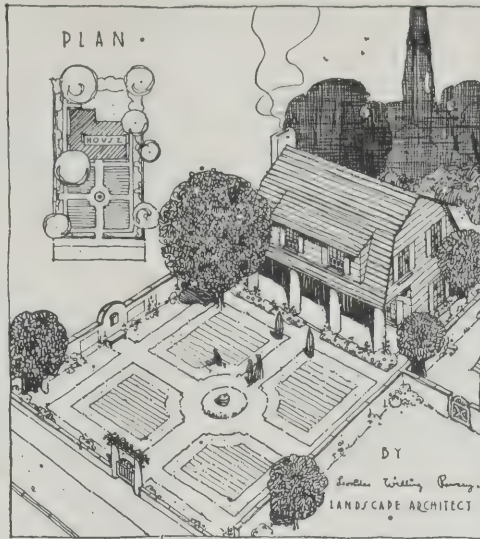
A "Bit" for the children

THE new vegetable garden may not be father's garden alone, but may be used by the entire family, with a parterre reserved for each member. That children like to work upon an individual plot is shown by the success of the school garden; and with a parterre reserved for each in the home



A INFORMAL SCHEME
B FORMAL SCHEME

The vegetable garden will fit into the general scheme of a very informal handling



The front yard garden need not be the usual object of derision

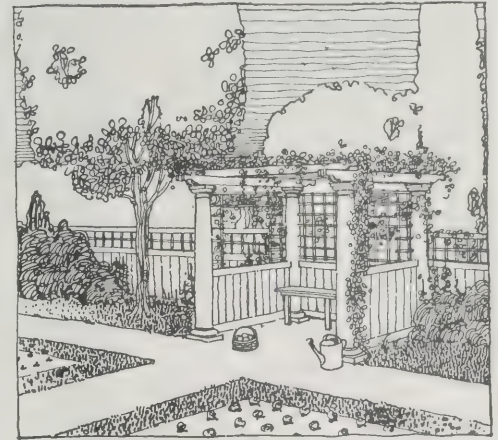
garden the child will cultivate a love for nature and for tidiness which will be invaluable, apart from the advantage of out-of-door work. The older people may have a parterre commensurate with their strength and ability, the careful working of which may add many pleasant years to their lives.

Gardens may be made which neighbors get together in maintaining and a similar scheme

may be worked out in such institutions as the old men's homes, private schools and orphanages.

Vegetables may be used for their foliage color, and plants such as horseradish, pie plant and asparagus where a denser foliage is desirable. Climbers may be used in a uniform manner, and trailers may be used for their peculiar advantage.

If these suggestions are heeded the vegetable garden should be an added feature to the attractive place apart from its tremendous importance at this time as a factor in the war and food crises.



Why not have a comfortable nook at one end or corner of the vegetable garden? Why not?

Flowers for the July Garden F. SPRING

Massachusetts

TAKE THOUGHT NOW AND PLAN TO HAVE BLOOM DURING THE PERIOD WHEN MOST GARDENS SHOW A LULL IN FLOWERS.—SPRING PLANTING FOR SUMMER BLOOM

EVERY one "running" a garden, large or small, has I suppose, the ambition to have an abundance of bloom during each and every month of the garden season. I had long realized that July was my sparse time and that my flower beds tended to "greenery" after the tide of the June color riot had ebbed.

"Why don't you go about to a lot of different gardens," suggested my gardener son, who, beside supplying us with all the vegetables in the seed catalogue, gives us many a lift in our own domain, "and see what you find in blossom in July?" I took his suggestion, and by finding a specialty here and a novelty there, to add to our own standbys, succeeded last year in making my garden look not only green, but gay, in July. The results I am going to "pass on" that they may be a little help to others in studying the spring catalogues and deciding on their plans for the year.

Japanese Iris is then at its best. To my mind no flower grown is so distinctly queenly and gorgeous. I have set a border of this at the front of my garden alternating with *I. sibirica* which blooms in late June running into early July, thus insuring a fairly long season of bloom. When the Japanese Iris is at its height,

one can only wonder—and admire! Every individual is beautiful and therefore one need not purchase named varieties unless a long purse allows. The "clumps" increase in size and luxuriance. My own border has been delighting us for many years. The English Iris (*I. zippoides*) is mainly a July flower, following its enchanting Spanish relative which blooms in June. It is a bulbous Iris, most

charming and beautiful, of varied orchid-like colors. As bulbs are small and stems slender, it may be set, like the Spanish, thickly, between other plants which follow. We fill in spaces in front of and between our July Iris border, with dwarf Zinnias, Bachelor's Buttons, and Sweet Alyssum, to insure a gay succession until fall.

Roses. A few Ramblers, set around arches or pergolas, add much to the color and gay appearance of any garden. The blooming time of Crimson Rambler, Dorothy Perkins, and Baltimore Belle runs over into July. The standard Roses have had their splendid show, but many rare blossoms may be cut during July. Pansies, Violas, and Verbenas may be planted around them as a bed carpet.

Hollyhocks are distinctly July flowers, and nothing is more decorative and showy, massed in backgrounds, or against a gray stone wall—if you are fortunate enough to possess one. They soon grow shabby and must have as neighbors later blooming plants to fill in. The single ones are to my mind most beautiful. Hollyhocks are attacked by a fungous disease. Spray early with bordeaux mixture. Cover with manure in winter.

Lilies. Of these there are many



The Tiger Lily a feature. Marigold behind sundial with low annuals in front of them

to ornament and make fragrant the July garden, of which they are a distinct asset. *Lilium candidum*, the Madonna Lily, comes first to mind. I think there is no more enchanting combination than masses of its pure white blooms next *Delphinium*. Save your Easter Lily bulbs too and set them in the garden. The Tiger Lily with its old timey associations of humble country homes and deserted farm gardens, is a favorite of ours, and set where its gaudy coloring will not offend, is picturesque and effective. The Brown Day Lily (*Hemerocallis fulva*) is of the same class—rather coarse and common but effective as a “filler” and flourishing under any conditions. I once threw a clump on our compost heap and weeks after found it blooming gaily, not at all daunted! *Lilium auratum*—Gold-banded Lily is a gorgeous flower, to be cherished and admired—as the Madonna is to be loved. *L. speciosum rubrum* is another magnificent variety. The old-fashioned Lemon Lily (*Hemerocallis flava*) should always be included: blooming time extends into July, to be followed by the Yellow Day Lily (*H. Middendorfi*) paler, more delicate and slightly fragrant; both do well in partial shade. Two or three natives are “must haves”; superb—American Turk’s-cap Lily; Canadian—the “Nodding Lily” of our childhood. *Lilium elegans* I prize greatly; its large orange-red clusters of blossoms are brilliant massed, hardy and increase in number each year. All Lilies require plenty of water and a winter mulch.

Delphinium is surely one of the finest of, not only the July, but of the entire season’s showing. If severely cut after blooming, a second flowering rewards us. Save seeds of the finest and start same season to tuck in bare corners; we can hardly have too many! Plant in numbers, to give broad masses of color. Put a few coal ashes over clumps when starting, to discourage white grubs. Stake early.

I love the whole family of Canterbury Bells. *Campanula carpatica*—both blue and white—is at its best in midsummer; and *C. persicifolia* (Peach Bells) both blue and white, gives wonderful color masses of great beauty. New blossoms appear through the entire season. There is a tall, delicate lavender variety that I prize greatly, and have never been able to name. It is a great “spreader” and beautiful picked. I once saw the entire altar, at the little Miracle Church at Ste. Anne de Beaupré, Canada, decorated with hundreds of its tall, ethereal, lavender spikes, and the beauty of the show has always stayed in my memory.

Perennial Phlox starts its gorgeous career in July, and is easily one of the best half dozen perennials. Keep to the brilliant, clear shades, and have plenty of white; divide every three years. Single side shoots removed in the spring will propagate fine varieties. Miss Lingard is an early

white variety that I prize highly. It flowers in spikes, freely and abundantly, and has beautiful glossy dark green foliage.

Foxgloves are one of June’s left-overs, but so decorative and ornamental that its late bloom should be encouraged by breaking off central stalk after too long an expanse of seeded stem appears. The pure white is most effective and beautiful. Encourage starting many of its thousands of self-sown seedlings,



Tall standard Heliotrope a feature on each side of upper steps. Snapdragons used freely, also blue *Steptosolen* in full bloom. Annuals on steps

for a great number fail to winter. Set where ice and water will not settle about them.

Blazing Star, if carefully set where its pinky-lavender hue will not clash with other colors, is a striking and individual addition to the July garden, with its long shooting sprays of bloom.

Bee Balm—*Monarda didyma*—will spread and flourish in hot corners, and its color is excellent, and that *Lychnis*—miscalled London Pride—an old-fashioned flower now in favor, of a fine, flame scarlet, is a favorite in our garden.

Sweet William continues to bloom, although



Hollyhocks a feature for the month. Phlox coming into bloom. Ribbon grass gives light touch. Annuals used in foreground

we have to cut it down before the season has far advanced. Shake out seeds liberally, and your border will be perennial. We had a gorgeous wide row of salmon pink (var. Newport Pink) this year, that was the glory of the garden. *Gaillardia*, Perennial Coreopsis, *Dianthus*, Snapdragon, all give bloom in July, and are satisfactory and valuable additions.

Balloon flower (*Platycodon*) with its gentian-blue bells is a favorite of mine; also *Hunnemannia*, a charming poppylike flower not much grown, with finely crimped yellow cups and lovely gray-green feathery foliage; beautiful for picking.

Before leaving the subject of perennials, I cannot too strongly urge careful cutting of all withered blooms. Amateurs often cannot realize what a vast difference this makes in the appearance and productivity of the garden. A second blossoming is thus given to most perennials, and blooming time of annuals indefinitely extended.

OF ANNUALS for July I shall not attempt more than to give a short list of my own favorites. July is the carnival of the annuals, which, if started early enough, will give a wealth of bloom, of every color and variety. Let me strongly urge getting annuals into early flowering. Those starred (*) in list below,

may with great benefit be started in the house very early in spring. [Practical detailed instructions for planting seed in the house or frame will be given in the February GARDEN MAGAZINE.] Others not having tap roots will gain in length of season if started in a simple cold frame.

Zinnias, both tall and of the charming new dwarf variety; Bachelor’s Buttons (Emperor William best); Poppies—of which have possible every variety both as to color and blooming time; Marigolds; Petunias; Nasturtiums; Verbenas*; Pansies*—including Violas*, Annual Larkspur (new double, one of the best annuals grown and blooming until hard frost); Salpiglossis; Mourning Bride; Phlox Drummondii; Calendula; Early Cosmos* (beautiful set in Asparagus); Sweet Pea; Sweet Alyssum; *Streptosolen**, a charming low-growing blue flower seldom seen, especially lovely for rock-work.

A last word in reference to work in the July garden—stake all tall plants not already attended to; but remember early preparatory staking is infinitely more satisfactory than late compulsory attention.

The load of wood from the woodlot that is burned in your home this winter will not only keep you warm, but will also release some coal for another family that might suffer without it. The ring of the axe in the woodlot will mean less suffering from cold in the tenements. As a duty to our country let’s use the fuel furnished by the country side.

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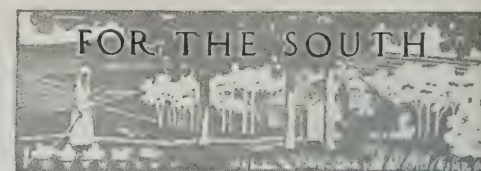
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Harry A. Bunyard,
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Getting a Running Start

THIS is the month of preparation: choosing the garden site, planning the garden on paper, ordering the seed, mending the tools making stakes, etc.

If the agricultural lime was not put in the fall it should be spread on the ground now, so that it can be washed into the soil. Deep plowing in the fall and a covering of lime helps to liberate the potash already in the soil and make it available for new crops.

Choosing the Garden Site

A SOUTH-EASTERN exposure is preferable with the rows running north and south. A garden should be no larger than is really necessary to supply the needs of the family, or to be kept in good order through the amount of labor one can command. Especially in this year of stress. Much can be done on one-tenth of an acre, and a backyard garden measuring 30 x 40 feet will feed a family of four, with judicious management of rotation of crops; though this does not allow for staples such as potatoes and cabbages for winter storage.

Planning the Garden on Paper

DRAW the garden to scale, i.e., in your plan let a half inch or a quarter of an inch represent a foot. Apportion a part of the garden for small fruits, and also for perennials or permanent crops, so they can remain undisturbed while the other crops which quickly come to maturity can be planted in rotation.

Put the permanent garden at the furthest end; and the herbs nearest the house, for convenience. The next nearest space lay off for the ever changing crops, designated under the head of annuals. Thus the raspberries and blackberries and dewberries could be planted at the furthest end and trained to a fence or tied to stakes. Then plant gooseberry and currant bushes, and then a row or two of strawberries. Have the asparagus bed next and then a row of rhubarb. The long season crops are next in order; these are salsify, carrots, parsnips, and onions.

Of the other vegetables such as beets, peas, snap beans, butter beans, potatoes, tomatoes, squash, cucumbers, etc., there should be continuous plantings, following each other in rapid succession, and these crops should be planted where they are easy of access on account of the constant manuring and cultivating and rotating of crops.

After planning the garden on paper this plan will serve as a guide all season and should be kept ready to hand to refer to constantly.

Ordering the Seed

GET busy at once. (1) Send for catalogues of reliable seedsmen; (2) make out your order; and (3) send it off as soon as possible. If a garden calendar or diary has been kept as has been constantly advised in these columns, refer to the notes now and make a careful list of those vegetables that have proved satisfactory, with the amount of seed needed. Be certain to order enough for

(Continued on page 206)

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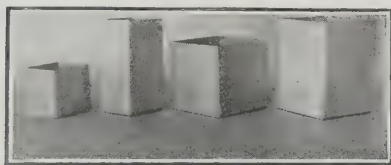
C. H. Allender, Mgr.

Begs to announce the removal to more commodious quarters at

**37 Warren Street
New York City**

Order Your Paper Pots Early

No increase in price, while present stocks last.



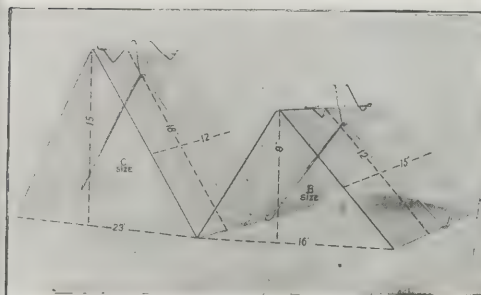
2 x 2 4 x 2 3 x 3 4 x 3

Make gardening a pleasure and a success. When it is time to set your plants out of doors you simply plant the pot in the ground and it rots away. Set your "Groquik" Forcers over them and you will have the finest results—4 to 5 weeks ahead of the ordinary method.

	Per 100	Per 1000
2 x 2 size—for all small Plants...	\$.75	\$5.00
4 x 2 size—for Sweet Peas only...	1.00	6.00
3 x 3 size—for Tomatoes, Melons, Cucumbers, etc.	1.25	6.50
4 x 3 size—for Corn, Beans, etc.	1.50	7.00

Every Seed Means a Plant!

"Groquik" Forcers



SIZE C
\$16.00 per 100

SIZE B
\$10.50 per 100

Glass extra. Smaller quantities can be had. Send for price list.

Single Wire Forcers



as shown alongside, are assembled by simply inserting the glass in the side loops. Any size of glass can be used.

Sample on receipt of 15c
Wires only, per dozen..... \$ 1.50
Wires only, per 100..... 11.50

This is the N. Y. Division Selling Agency of The Skinner Irrigation Co. Stock of Fittings, etc., always on hand.

(Continued from page 204)

the whole season. It is better to order too much than to under-order, but don't be wasteful—good seed is scarce. Order only from reliable firms. Labor is too valuable now to throw time away in planting poor seed. Get the very best. Plant prolific types, as quantity is a factor now. Try a few new and well recommended varieties, but for the main crops stick to the well tested varieties. Below is a list of vegetables that have proven of fine quality and suitable for the home garden in this section.

ASPARAGUS: Giant Argenteuil.
BEANS: Burpee's Stringless Green-pod Bush-bean; Early Valentine (Red); Kentucky Wonder (Climbing); Fordhook Bush Lima; Southern Butter-bean (Pole); Burpee's Giant Podded Pole Lima.
BEETS: Bassano; Extra Early Egyptian; Eclipse.
CHARD: Lucullus.
BRUSSEL'S SPROUTS: Burpee's Danish Prize.
CABBAGE: Early Jersey Wakefield; Succession; Early Flat Dutch; Autumn King.
CARROTS: Chantenay.
CAULIFLOWER: Burpee's Dry-weather.
CELERY: Golden Self-blanching; Winter Queen.
CORN: Golden Bantam (early); Adams Extra Early; Howling Mob; Country Gentleman; Stowell's White Evergreen.
CUCUMBERS: Davis, Perfect; White Spine.
EGGPLANT: Black Beauty.
ENDIVE: White Curled.
KALE: Dwarf Scotch.
LETTUCE: Burpee's Way-ahead; Big Boston; May King; Dwarf White Heart Cos.
MUSK MELON: Nettle Gem.
WATERMELON: Florida Favorite.
OKRA: White Velvet.
ONIONS: Silver King; Potato onion; Yellow Danvers; White Queen; Prizetaker.
PEAS: Burpee's Extra Early; Alaska; Telephone; Nott's Excelsior; Champion of England; Black Eyed Peas.
PEPPERS: Chinese Giant; Neopolitan; Ruby King; Tabasco.
PUMPKINS: Jumbo King.
RADISHES: Scarlet Button; White Icicle.
RHUBARB: Wyatt's Victoria.
SALSIFY: Sandwich Island Mammoth.
SPINACH: Victoria.
SQUASH: Early White Bush; Golden Crookneck.
TOMATO: Chalk's Early Jewel; Sparks' Earliana; Brimmer; Bonny Best; Success; Stone; Matchless.
TURNIPS: Purple Top; Norfolk (for salad).
POTATOES: Early Rose; Eureka Extra Early; Irish Cobbler; Green Mountain.

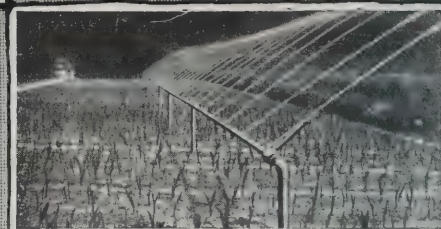
Early Planting

PLANTING does not form a conspicuous part of the work for this month. But during the fine weather it is a good month to plant an asparagus bed; also as peas are a cold weather plant the smooth varieties of garden peas can be sowed the first and the middle of the month. Sweet peas should also be sowed now. Make a trench two feet deep, put in it six inches of well-rotted cow manure, and over this a four inch layer of good garden soil, on this sow the seed, and cover with three or four inches of soil. As the plants appear gradually fill in the trench. This makes them deep rooted and able to resist the intense heat, and with a little mulching of leaves or grass clippings the sweet peas will bloom for a much longer period. Peas and beans and all plants of the leguminous kind will give a bigger yield if the seed is inoculated before planting. There are good methods of inoculation that have been advertised in the columns of this magazine from time to time.

Begin to Spray

THE orchard should be looked after now and then and if there is any appearance of San José scale or oyster scale the trees should be sprayed with lime-sulphur wash several times during the winter. If the trees were not pruned in the fall they should be pruned now before the sap rises in February. Do not trim any of the early blooming shrubs at this time; such as Lilac, Forsythia and Spiraea.

(Continued on page 208)



Water Your Garden The Skinner System Way

HOSE watering means too much in some spots, too little in others; none at all in still others. Also means a lot of bother and trouble.

Water your garden the Skinner way. The Skinner System waters thoroughly and uniformly. The water falls in a gentle rain that will not harm tender plants or pack the soil.

For \$18.75 you can have one of our complete Portable Watering Lines, 50 feet long. It waters 25 feet on each side of it. Equipped with quick, easy working couplings. Pipes galvanized. Nozzles are brass. Nothing to get out of order. Our 100 feet line costs \$36.25. Prices on other lengths proportionate.

Write for catalogue. Also ask us about our new Automatic Oscillator; a little device that makes it possible for you to turn on your water and forget it, knowing that it will be shut off automatically when your garden has been satisfactorily watered.

The Skinner Irrigation Co.

219
Water
St.

Troy
Ohio

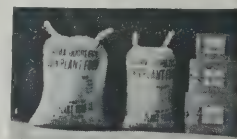
**SKINNER
SYSTEM
OF IRRIGATION.**

A Green Lawn in Dog-Days Had a Good Start in Spring

The first few weeks in spring "set the style" for your lawn. Rich green grass in mid-summer means that you fed the roots in spring with a fertilizer that the plants could take up quickly and readily.

Takoma Odorless Lawn Plant Food

makes green healthy grass; is clean, absolutely odorless, and easy to handle; costs less than other fertilizers, because you use less.



"The Maintenance of Lawns," gives full instructions for making new lawns and renovating old ones.

Send for a copy

Odorless Plant Food Co.

1317 New York Avenue

Washington, D. C.

School of Horticulture for Women

AMBLER, PA.

Two years' practical and theoretical course in Horticulture. Next entering class for diploma students January 15, 1918. Fall course of ten weeks for amateurs begins September 11th. Write for particulars. Early registration advised.

Elizabeth Leighton Lee, Director, Box 105



A Garden of *Gladioli* is Never Monotonous

Day by day new beauties unfold, new shades and tints appear, until you begin to think that the whole range of colors has been covered.

And these experiences will come to everyone who begins a garden of Gladioli this year.

Here are **ten varieties**; the kinds an expert might choose, that will start such a garden for you. They will begin blooming in early summer and will continue until frost.

Mary Fennell. Deep lavender.	Golden West. Orange.
Dawn. Rich pink.	Goliath. Violet.
Europa. Snowy white.	Pink Perfection. Pink.
Canary Bird. Yellow.	Princes. Scarlet and white.
Clarice. Pink.	Victory. Sulphur yellow.

One Bulb of Each Variety, \$1 Postpaid

(I have a plan whereby you may get twenty-five bulbs for almost nothing. Ask me.)

My 1918 "Glad" Catalogue is free to all readers of this magazine. Write for it to-day.

JELLE ROOS

BOX B
MILTON, MASS.

DREER'S Garden Book 1918



will help you wonderfully to reduce the high cost of living. It is read by tens of thousands; professionals as well as amateurs as

An Authoritative Guide

to all garden work, both for Vegetables and Flowers.

256 pages, four full page color plates, and four full page duotone plates, and hundreds of photographic illustrations.

It lists all dependable varieties of vegetables, as well as the worthwhile novelties.

A copy free if you mention this magazine

HENRY A. DREER
714-16 Chestnut St., Phila.

HODGSON Portable HOUSES

HERE is the Hodgson way. All Hodgson Houses are first thoughtfully planned. Then each individual part is carefully made of best lumber—finished, fitted and painted. After which the house is completely erected at the Hodgson plant.

When you buy—your house is shipped in sections which can be put together by unskilled workmen quickly and you have a house exactly like the one you selected from the Hodgson catalog. And at exactly the same price.

✓ Hodgson Portable Houses include: bungalows, garages, cottages, poultry houses, play houses, dog houses, and many other kinds.

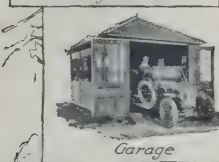
If you order now, and pay 25 per cent of the price of your house we will prepare and hold it until wanted. Send for catalog to-day.

E. F. HODGSON CO.

Room 228, 116 Washington Street, Boston, Mass.
6 East 39th Street, New York City



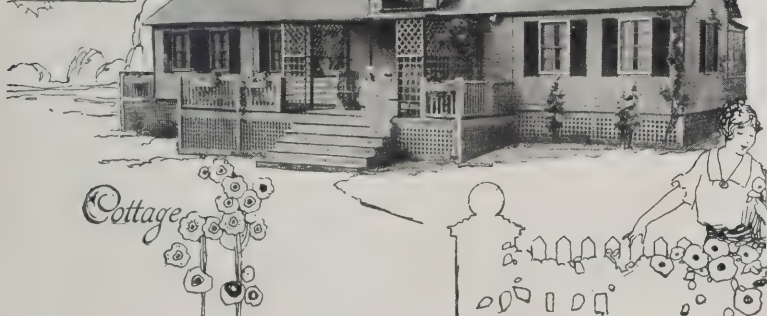
Play House



Garage



Bird House



Cottage



Plan Now for Your Spring Vegetable Planting

YOU will find just the helpful information you need in this new and different magazine for the garden enthusiast. It teaches the planting and growing of vegetables in the home garden. Plain, truthful, understandable advice about vegetable planting and growing is found each month in

VEGETABLE LORE

A Magazine for the Benefit of the Amateur Gardener

What to Plant—How to Plant—What Seeds to Buy—it tells about just these things, expertly but in plain words. Vegetable Lore teaches thorough cultivation. The cooking of vegetables is also covered. Vegetable growing is a patriotic duty and necessity. Full value to subscribers guaranteed in excess of claims or money refunded. Issued once a month—\$1.00 per year.

Send for Sample Copy. Edited and Published by

MAURICE FULD

1457 BROADWAY

NEW YORK

Garden Roses

IN Hardy Roses, we catalogue this year over one hundred and twenty-five of the best varieties for the American garden.

These are shipped to us direct from Hugh Dickson, Ltd., the wonderful Rosarian of Belfast, Ireland, whose Agent we are in America.

This year the supply is limited and in order to guarantee satisfaction and delivery, we ask our customers to let us know in good season what they want.

Standard Varieties: 60c per plant; \$6.00 per dozen, f.o.b. Madison.

All Freight and Customs Duties Paid.

Hugh Dickson's Novelties for 1918

and the best of the world's Novelties from other raisers, all fully described in our 1918 catalogue.

If not a customer send us your name and address for our mailing list.

**Charles H. Totty
Company**

MADISON NEW JERSEY

(Concluded from page 206)

Growing Crops

KEEP the lettuce beds going to have succession crops all winter. Give air to the frames every day by lifting them slightly, also water the lettuce only in the mornings. Seed for new crops could be easily sowed in a box in a sunny window to be transplanted later in the cold-frames or as spring advances in the open ground. When the plants are young they should be sprayed thoroughly with bordeaux mixture with arsenate of lead as a preventive against wilt and insects.

The conservatory and the greenhouse have their enemies in the way of insects and fungous growth. Keep the plants healthy by giving them plenty of air, even on the coldest days just so the air does not blow directly on them. Water them thoroughly and avoid a light sprinkling for in this way the roots of the plants do not get wet and they will sicken and die.

Mending the Tools

DURING the inclement weather, all tools should be thoroughly overhauled and put in good condition so as to be ready for the early spring rush. Individual, small cold frames can be made now. See directions in GARDEN MAGAZINE, January, 1916. They come in well in the early spring to put over plants that have been set out in the open ground and which should be protected at night from the cold and with a glass cover or even cheese cloth they will be much sooner brought to maturity, and thus earlier vegetables will be secured.

Begin now to keep a garden calendar or diary.

VIRGINIA

J. M. PATTERSON.

COMING EVENTS CLUB & SOCIETY NEWS

Meetings and Lectures in January

(Following dates are meetings unless otherwise specified)

1. Garden Club of Pleasantville, N. Y.
3. Marshfield, Mass., Garden Club.
4. Pasadena, Cal., Horticultural Society.
5. Lake Geneva, Wisc., Gardeners' & Foremen's Association.
7. Garden Club of Larchmont, N. Y. Meeting and Lecture.
8. Maryland Garden Clubs of America, Maryland Council of Defence, Women's Section, Arundell Club Hall, Baltimore, Md. Lecture: Selection of Varieties for Garden Use.
9. New Bedford, Mass., Horticultural Society.
9. Valdosta, Ga., Floral Club.
9. Lenox, Mass., Horticultural Society.
11. Nassau Co. Horticultural Society, Glen Cove, L. I.
11. Westchester, N. Y., and Fairfield, Conn., Horticultural Society.
12. Connecticut Horticultural Society, Hartford, Conn.
12. Dobbs Ferry, N. Y., Horticultural Society.
12. Massachusetts Horticultural Society, Horticultural Hall, Boston. Inaugural Meeting Exhibition.
14. New York Florists' Club, New York City, N. Y.
14. Garden Club of New Rochelle, N. Y.
14. Rochester, N. Y., Florists' Association.
14. Park Garden Club, Flushing, L. I.
15. Gardeners' & Florists' Club of Boston, Mass.
16. Rhode Island Horticultural Society, Prov., R. I.
16. Tarrytown, N. Y., Horticultural Society.
17. Salisbury, Conn., Garden Club, Subject: Kitchen Herb Garden.
17. Marshfield, Mass., Garden Club.
18. Dahlia Society of California, San Francisco, Cal.
18. Pasadena, Cal., Horticultural Society.
19. Lake Geneva, Wisc., Gardeners' & Foremen's Association.
22. Maryland Garden Clubs of America, Maryland Council of Defence, Women's Section, Arundell Club Hall, Baltimore, Md. Lecture: Propagation of Early Garden Vegetables.
23. Short Hills, N. J., Garden Club. Public Lecture.
25. Connecticut Horticultural Society, Hartford, Conn.
26. Dobbs Ferry, N. Y., Horticultural Society.
28. Park Garden Club, Flushing, L. I.
- 30-31. Massachusetts Horticultural Society, in conjunction with the Annual Meeting of the American Carnation Society, Horticultural Hall, Boston. Carnation Exhibition.

American Nursery Co's New Year's Message

To provide the best ornamentals which ideal soils, climate, and human skill of a high degree can produce, is the mission of our organization. Whether your plans call for a few rare plants only or the entire planting of an estate we stand prepared to supply your wants.

This is a Year for Deliberate Planning

Guesswork in gardening will be replaced by definite ideas, to assume tangible shape only after mature deliberation. Permanent gardens will receive more attention than ever before. While you plan yours, we invite you to consider ours

800 Acres—127 Years of Faithful Service

Our nurseries, two of the largest and most complete in the country, put their resources and experiences at your disposal. For 127 years, the Bloodgood Nurseries of Long Island have served a most critical clientele. For many years the F. & F. Nurseries of New Jersey have worked along similar lines with gratifying results. The American Nursery Company, as the combination of these two well-known leaders in the nursery world, solicits your favorable consideration.

Treatise on Evergreens and Catalogue FREE

It is none too early to write for both. The more chances you give us to aid you in your selection, the easier it will be for us to meet your requirements. It is our business to serve planters with the Best that money can buy in Nursery Stock for permanent results and lifetime pleasure. May we serve you?

AMERICAN NURSERY CO.

Incorporated

Singer Building New York

Farr's Hardy Plant & Specialties

—is a book of 112 pages, 30 of which are full page illustrations (13 in natural color). It is really a treatise on the hardy garden, containing information on upward of

500 varieties of Peonies (the most complete collection in existence), Lemoine's new and rare Deutzias, Philadelphus and Lilacs, and the Irises (both Japanese and German) of which I have all the newer introductions as well as the old-time favorites.

Garden lovers who do not have the Sixth Edition may secure a complimentary copy if they send me their name and address.

Bertrand H. Farr
Wyomissing Nurseries Co.

104 Garfield Avenue, Wyomissing, Pa.

Flowers Bear a Message Of Love and Sympathy

Flowers can be made to express every thought or feeling. But how much more joy for the sender when the flowers come from his own garden. There is real joy and relaxation in making a flower garden, in watching the handsome blooms unfold their glorious colors, and in sending them to someone dear to you.

Here at Cromwell we have thousands of plants that are waiting for an opportunity to grow in your garden. The treasures of Rose-land; new and old varieties of hardy perennials; many acres of trees, shrubs and evergreens—all described and pictured in CROMWELL GARDENS HANDBOOK, the 1918 flower book of this 46-year-old concern. Send a postal for a copy.

CROMWELL GARDENS
A. N. PIERSON, Inc.
Box 12, Cromwell, Conn.

Dwarf Fruit Tree Idea For Home Gardens To Help Solve Nation's Food Problem

We all know the value of fruit as a wholesome food. Present food problems demand that we should grow and eat more fruit to save staple foods.



A FINE DWARF BARTLETT PEAR

Ideal Trees

because, they are smaller growing and just the thing to fill up some of those empty corners of your back yard. Because again, they give you quicker results—in Fruit! They save two to six years of waiting!

We offer as Dwarfs
Apple Trees
Pear Trees
Plum Trees
Cherry Trees
Peach Trees

Everybody Plant!

We are all doing our bit in our own way. To prove the spirit of the times, this is the year of all years for each family to plant at least one fruit tree. Get one of my dwarfs for your tree!

A SPECIAL OFFER

Perhaps you have never grown any Dwarf Fruit Trees and would like to try an assortment? To enable you to do a little experimenting at trifling cost, we make the following "Dwarf Trial Collection" for only \$2.00.

1 Dwarf Wealthy Apple	-	-	-	-	\$.50
1 Dwarf Yellow Transparent Apple	-	-	-	-	.50
1 Dwarf Montmorency Cherry	-	-	-	-	.60
1 Dwarf Seckel Pear	-	-	-	-	.40
1 Dwarf Japan Plum	-	-	-	-	.60
1 Dwarf Peach Tree	-	-	-	-	.40
List Price	-	-	-	-	\$3.00

Special Collection Price F.O.B. Geneva \$2.00

THE VAN DUSEN NURSERIES
C. C. McKAY, Mgr.
Box G
Geneva, N.Y.



SPITZENBURG



Spring
Spraying

insures a "Successful Garden"

WHY let bugs, worms, scale and blotch steal away the vitality and dainty beauty of your flowers—despoil your fruit and vegetables—or ravage the foliage of your friendly shade trees?

A few cents' worth of spraying materials, a few minutes' time and any one of the 25 Deming Sprayers will effectively forestall their attacks. An ounce of spraying prevention now saves hours of regret later. With each sprayer comes an 80-page how-to-spray guide book on "Spraying for Profits."

Send to-day for complete 40-page catalogue showing a sprayer exactly filling your needs. Free on request.

THE DEMING COMPANY
111 Depot St., Salem, Ohio

Manufacturers of Deming Hydro-Pneumatic Water Supply Systems in all Capacities. Write for catalogue.

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Please send me by

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Catalogue
Free

In a Garden of Roses there's a World of Charm

Think of a Rose-bed, with its large blooms of fairy-like colors, filled with soft, delightful fragrance, and giving to the grounds of the owner a matchless charm.

The "Forest City" Rose Collection is your opportunity to have a Pose-garden. All are strong **two-year, field-grown** plants, and, with the possible exception of Echo, they should bloom this coming summer.

"Forest City" Rose Collection

- 1 **Echo.** (New) Splendid climber, beautiful semi-double flowers of bluish white.
- 2 **Lady Alice Stanley.** (H. T.) Deep coral rose and flesh pink. Flowers freely over a long period.
- 2 **Lady Hillingdon.** (T.) Splendid flowers of deep apicot-yellow. Very attractive in bud and bloom.
- 2 **General MacArthur.** (H. T.) Dazzling crimson-scarlet, exquisitely perfumed. A favorite Garden Rose.
- 2 **Mrs. Andrew Carnegie.** (H. T.) A wonderful white Rose of large size; delightfully fragrant.

Nine Plants, 2-Year, Field-Grown, \$5
Delivered Anywhere in the U. S. for \$5

The Storrs & Harrison Company

Seed and Plant Annual

tells all about the Roses in the "Forest City" Collection, besides some 200 other choice sorts. Soil preparation, how to plant, and care for Roses are some of the invaluable features. Lists everything for lawn, garden, greenhouse and orchard. Send for a copy.

The Storrs & Harrison Company
Box 711, Painesville, Ohio



RIPE TOMATOES

earlier than you ever had before
It's up to you to make your
WAR GARDEN

a booming success this coming season. Don't be satisfied with a garden like the other fellow—beat him to it. Have a garden that you'll be proud of. No matter how backward the Spring, it's easy with

THE BALL SEED & PLANT FORCER

Send for my Beautiful **BOOK FREE.** It's chock full of the latest developments in modern gardening. It gives you gardening information found in no other publication. It tells you how you can have a garden with flowers in full bloom and vegetables for your table a month earlier than you ever had before. **Just drop me a post card and I'll send you your copy by return mail.**
THE BALL MFG. CO., Dept. E, Glenside, Pa.



Free!

A 50-gallon barrel of Scalecide free to any one who will suggest a **fairer** guarantee than that given below.

"SCALECIDE"

As proof of our confidence and to strengthen yours, we will make the following proposition to any fruit grower of average honesty and veracity: Divide your orchard in half, no matter how large or small. Spray one-half with "SCALECIDE" and the other with Lime-Sulfur for three years, everything else being equal. If at the end of that time, three disinterested fruit growers say that the part sprayed with "SCALECIDE" is not in every way better than that sprayed with Lime-Sulfur, we will return you the money you paid us for the "SCALECIDE."

Send for new free booklet, "Profits in Fall Spraying."

B. G. Pratt Co., M'f'g Chemists
50 Church St., Dept. I, New York



MANY
WILL BE
SCARCE
ORDER
EARLY

THOUSANDS of successful 1917 garden-beginners are to-day praising Vaughan's Seeds. Ten thousand City and National Gardens, successful with our seeds, already plan with enthusiasm their next year's garden—bigger and better; we can help.

For Over Forty Years

we have gathered from the ends of the earth the **Vegetables of quality and Flowers that bloom**, and by our tests and trials we know and offer only such as will give results.

The available garden seed supply is the shortest ever known. Plan carefully and it will be safest to ORDER EARLY.

Those planting in quantity, scarce seeds such as **Onion, Cabbage, Beans, Peas, Pepper, Sweet Corn and Tomato.** WRITE NOW for prices.

1918 War Garden Collections

(Include Garden Booklet Free)

No. 1 Complete assortment of Vegetables for 25 ft. garden, prepaid **\$1.00**

No. 2 Complete assortment of Vegetables for 50 ft. garden, prepaid **\$1.50**

Begin your 1918 garden—order one of the above.

Vaughan's Catalogue "Gardening Illustrated" goes with either, or by mail **FREE, 160 big pages with colored plates. 30 Greenhouses, 120 acres Nursery.**

VAUGHAN'S SEED STORE

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(U. S. Government License, No. 31074)

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In these times, every dollar invested in plants, shrubs and trees, must buy a full dollar's worth. Garden Magazine readers will get it here! In planning permanent garden improvements, the hardier species will receive preference. Our stocks of all are splendid! Orders should be placed at once. The sooner we can ship, weather permitting, the less will transportation delays upset your planting schedule. Send now for complete free catalogue and

WRITE FOR FREE ADVICE

on what you may safely plant now in your locality and on your particular grounds. Unless we feel sure that we can satisfy you, we shall not encourage you to order. This is the attitude that earns us the loyal appreciation of thousands of satisfied customers every year. Let's get together! We'll make your plant problems our own.

WILLADEAN NURSERIES Sparta, Ky.



Plan Your Hardy Garden NOW

Before the Spring Rush Starts

We shall be glad to give your problem our personal attention through our staff of experts, whether you plan a little plot in your backyard or contemplate laying out an extensive estate.

"Palisades Popular Perennials"

Plant for Permanency

A sixty-four page portfolio as unusual as it is interesting. For more than fifteen years, we have specialized in hardy perennials. All our intimate knowledge of the different kinds, all our observations of their special adaptability to different soils and situations are embodied in this book, which you will find more comprehensive than many expensive text books. The value of the book forbids its indiscriminate free distribution. Send 10 cents for it to-day, which we will refund on first order.

Over a Thousand Different Kinds to Select From

Whatever is worth growing in hardy plants, grows in our nurseries. We believe ours to be as complete and as large a stock of hardy plants as can be found in this country. Whether you want a few specimen plants of a rare species, or thousands of one and the same kind for planting in masses, we can serve you. During the growing seasons, our nurseries are always open to visitors who are welcome to make personal selections. Write for our catalogue TO-DAY.

PALISADES NURSERIES, Inc.
Sparkhill, New York



A Garden Message To Our American Allies

IN spite of the War you can have a surprising number of your Sutton Seeds again this year. Some varieties, of course, will be limited in quantities. Especially vegetables. This means you must order early.

Of last year's shipments to America, not a single one was lost because of the U-Boats. So do not hesitate to order, because of that contingent.

But bear this important fact in mind; that if you want your seeds early, you must order early.

Send 35c. for Garden Catalogue. With \$5 purchase of seeds, the 35c. will be promptly refunded.

Sutton's
Sutton's

Royal Seed Establishment
Reading, England

WINTER, SON & COMPANY
64-B Wall St., New York
Sole Agents East of The
Rocky Mountains

THE SHERMAN T. BLAKE CO.
429-B Sacramento St., San Francisco, Cal.
Sole Agents West of The
Rocky Mountains

Sutton's
Sutton's
Seeds

Something New, Novel and Useful



The Universal Portable Shelf is made of steel and beautifully enameled. Weighs only 8 ounces and supports 20 pounds. Hangs on a single nail. Equally useful for toilet articles, lamps, vases, clocks, books, and 1000 other things, both in the home, garden, garage, greenhouse, office, store, etc. Finished in light, medium and dark green, white, mahogany, light pink, light blue, tan, French gray, gilt, aluminum and green-bronze. Postpaid to any address for 60c each; 6 for \$3.25; 12 for \$5.50.

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NATIVE RHODODENDRONS AND KALMIAS in Carload Lots, at Reasonable Prices

Our collectors have secured a splendid lot of Rhododendron maximum and Laurels, in specimen plants, for spring delivery. These are the ideal hardy broad-leaved Evergreens for massing or grouping under trees or along borders. Get our prices NOW.

Write for Free Catalogue

Describes our general line of fruits and ornamentals which will be found complete in every respect. Please ask for your copy to-day.

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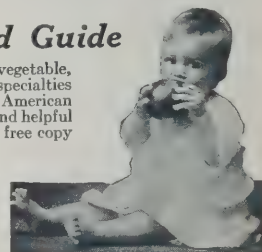
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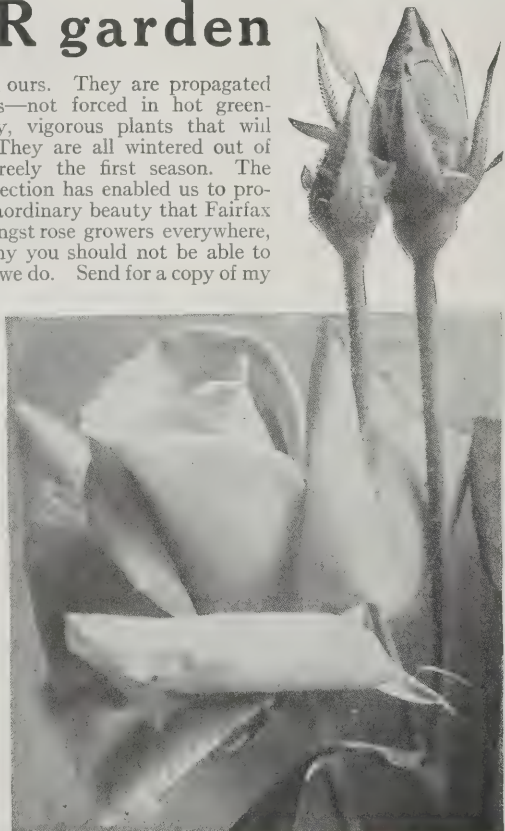
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AND IMPORTER

Old Fort

North Carolina

THE GARDEN MAGAZINE

JANUARY, 1918

CONTENTS

COVER DESIGN: BRIGHT FLOWERS—"A RAY OF BEAUTY" - - - - - *Ortlip*

PAGE

AMONG OUR GARDEN NEIGHBORS - - - - - 183

"Our Object* to Win the War"—But, Be Reasonable—We Want Daylight Saving—Topworked Apples—Home-Made Potted Plant Fumigator—The Long and the Short—The Sand Lily—An Experiment with the Potato—Pepper Vine—The Climbing Hydrangea—English Material for American Gardens—Sweet Corn, and "Sweet" Corn—A Word About Collards.

PLAN TO PLANT—THE CALL OF 1918 - - - - - 186

THE MONTH'S REMINDER, JANUARY, 1918 - - - 187

THE BEGINNER'S GARDEN - *W. C. McCollom* 188

GARDEN "MOVIES" NO. I - - *W. C. McCollom* 189

THE PATRIOTIC GARDEN - - - - - 191

MAKING THE SMALLEST QUANTITY REACH THE FARTHEST - - - - - *Grace Tabor* 191

Plans by the author

PLANNING FOR FRUIT THIS YEAR AND AFTER
M. G. Kains 194

Photographs by the author and N. R. Graves

SOLVING THE FUEL PROBLEM - - - - - 196

YOUR SEED ORDER AND THE TANGLE OF VARIETIES 197

Photographs showing differences of type

MAKE YOUR WAR GARDEN ATTRACTIVE
Leonidas Willing Ramsey 200

Plans by the author

FLOWERS FOR THE JULY GARDEN - *F. Spring* 201

Photographs by the author

FOR THE SOUTH* - - - - - *J. M. Patterson* 204

CLUB AND SOCIETY NEWS - - - - - 208

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LEONARD BARRON, EDITOR



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100 High St. Columbus, Ohio



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In writing kindly mention "Garden Magazine"

Stumpp & Walter Co

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Kunderd's 1918 Catalogue of New Gladiolus



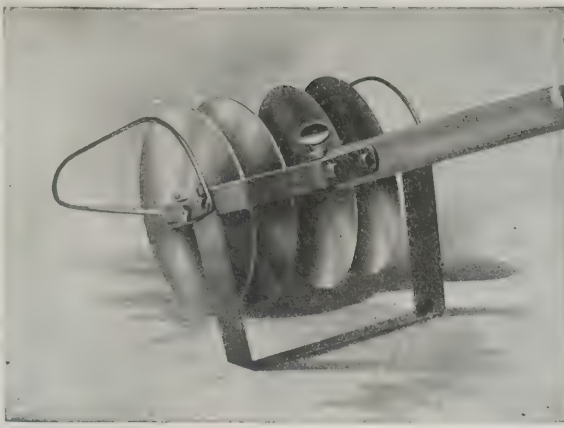
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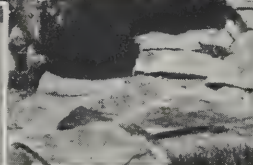
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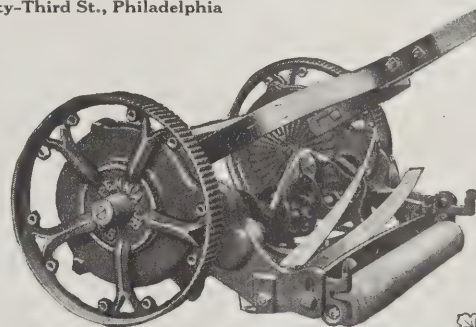
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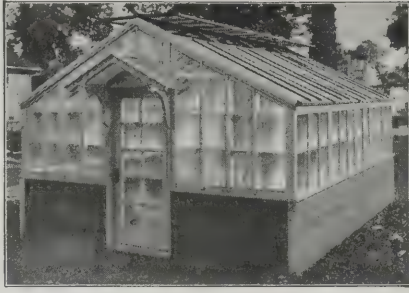
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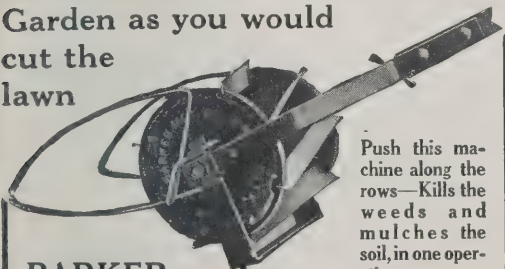
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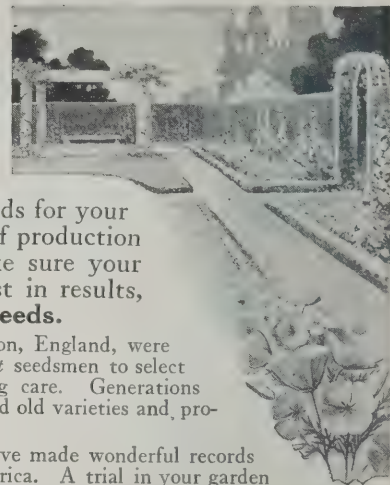
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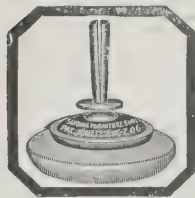
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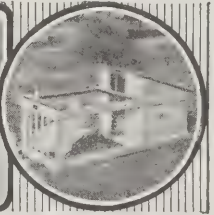




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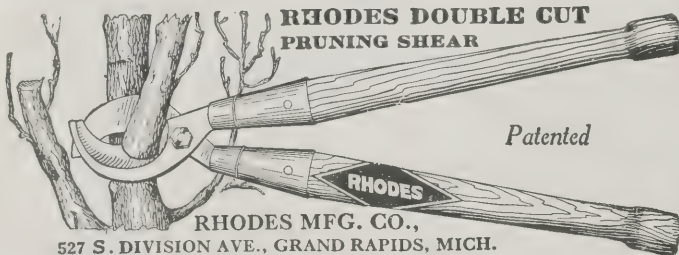
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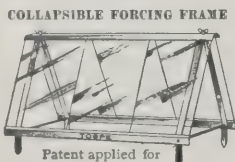
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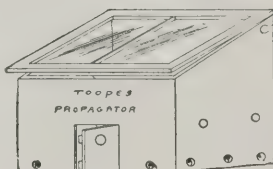
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